A STUDY OF ELIMINATION OF STUDENTS FROM THE AUGUSTA, KANSAS HIGH SCHOOL FOR THE YEARS 1923 TO 1929.

by

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CHAPTER 1.

INTRODUCTION.

The public spends more for its schools to-day than it ever did and thinks that they are more efficient than they used to be. An up-to-date school system has splendid modern buildings, sufficient and efficient equipment for each department, trained administrators, and teachers with college degrees who have had scientific training in their special fields. The curriculum has been enriched and made more attractive to the students and more practical by adding manual training, cooking, sewing, industrial and vocational training, music and other arts. Everybody has emphasized the importance of a high school education and urged all who finish the grades to go to high school. The high school enrollment has increased more than 1000% in the last thirty years[1]. When we think of all this then we feel certain that our school system is more efficient than formerly and we are proud of our achievement.

Every time a high school principal makes out his monthly or annual reports, he finds that the

1. Phillips, Frank M., Washington University, Washington, D.C., Graphic View of Recent Trends in Our Schools. p.16, Houghton Mifflin Co., 1929.

column asking for the eliminations calls for a much larger number than he had hoped to put there. Educational magazines and other literature call our attention to the fact that there is too much waste. Of the large number who enter the high school less than one-half graduate[1] four years later. The high school seems to attract many but holds too few. Is it true that one-half of those with a low I.Q. drop out before finishing the third semester's work[2]? Why so much elimination?

This problem attracted the writer's attention, and in 1926 he decided to make a study of the situation as it affected the Augusta (Kansas) High School, of which he was then the principal. He was especially interested to find what relation the intelligence quotients might have to elimination. In order to be of scientific value it is necessary that the study cover several years' time so the classes of 1923 to 1929 inclusive were studied.

1. Ellis, Robert S., Army Alpha Scores in Relation to Progress in High School. School & Society 22: 439-40, October 3, 1929.
2. Feingold, G. A., Intelligence and Persistence in High School Attendance. School and Society 18: 443-50, October 13, 1923.

CHAPTER II

RELATED LITERATURE.

A large number of studies have been made of school failures, over-age, retardation, elimination and the relation that I.Q., attendance, economic condition of the family, residential location, and other factors might have on these problems. Numerous articles have been written as to the causes and possible remedies of these school conditions. The ones that the writer found most interesting and useful are briefly reviewed here.

In 1906 VanDenburgh[1] started his study of elimination of high school pupils in New York City. For this he took 1002 of the students who as freshmen were entering the high schools of New York City in February, 1906, or the second semester of the school year 1905-06. This number was about 1/6 or 17.4% of the total freshman enrollment. Since they were taken from eleven different high schools they would be a "fair sampling". Because the necessary information on several could not be secured, the number was finally reduced to 958, 366 boys and 592 girls.

1. VanDenburgh, Joseph K., Causes of Elimination of Students. Teachers' College, Columbia, N.Y., 1911.

His method was to follow these boys and girls till they dropped out of high school or graduated four years later. This was done by taking the school records of the 598 pupils and combining them in various tables to bring out the different factors that might influence elimination or graduation.

In comparing the rate of elimination with the total enrollment, he found that one-fourth did not stay longer than one semester, one-third only two, one-half dropped out during the first two years, and three-fourths dropped out some time during the fours years. Of the remaining one-fourth about one-half(12%) graduated on time, and the other half was retarded but still in school. About the same number of boys and girls graduated on time, but there were nearly twice as many girls in the retarded group which expected to graduate later.

In studying the group that had been eliminated he found that 63% of the boys and 64% of the girls dropped before they had finished the first year's work, and that another third dropped out during the second year. About 77% of the eliminated were gone before finishing the second year's work. He concluded that three-fourths of those eliminated left before finishing one-fourth of the work.

In his study of the relation between the entrance age and elimination, he found that the pupil who entered at 14 years of age or younger remained about twice as long as the one who entered after 14. He found the median entrance age to be 14 years 6 months and the ideal entrance age to be 13 (13-0 to 13-12) years. The pupil who entered at 13 had twice the probability of normal graduation that the pupil one year older had, three times the probability of the pupil two years older, and from four times (in cases of boys) to six times (in cases of girls) the chance of graduation of the pupil three years older. Early entrance meant that they had completed the elementary grades in less than usual time which would indicate that they had superior ability.

VanDenburgh found that the boy who decided at the time he started his high school work that he would stay till he graduated, had four times as long a high school career as the one who did not decide to finish; the girl had five times as long a career. On the other hand 88% of the boys and 86% of the girls who did not decide to graduate dropped by the end of the second year. Those who do not intend to graduate when they start stand almost no chance of doing so later.

Even of those who intend to only 71% of the boys and 54% of the girls graduated.

He found that the early belief in the necessity of a high school education favored normal graduation, and that only 2% of the boys who did not think a high school education necessary for their life work graduated. The boy who thinks that he can get his preparation elsewhere will do so. Even of those who think a high school education necessary, only from one-half to two-thirds graduate.

The teachers were asked to rank the students on ability, industry, and results. Ability was defined as natural brightness, or ability apart from school work; industry as application to a task whether pleasant or not, stick-to-it-tiveness, finishing a job; and results as general efficiency, undertaking and actually accomplishing results. After the students had been ranked, they were divided into three groups, first, second, and third. The following table was compiled from three of VanDenburgh's tables. It gives the time by semesters that each group stayed in school and the percentage of each group that graduated. The boys who ranked in the first third in ability had an average stay of six semesters and 32.4% graduated, those ranking highest in industry stayed six semesters and 31.1% graduated,

and those ranking highest in results stayed 6 semesters and 29.87% graduated.

RANK in------ABILITY-------INDUSTRY---and---RESULTS						
BOYS	STAY	GRAD.	STAY	GRAD.	STAY	GRAD.
1st third	6 sem.	32.4%	6 sem.	31.1%	6 sem.	29.87%
2nd third	2 "	6.32%	3 "	10.0%	3 "	8.1%
3rd third	1 "	8.6%	1 "	6.57%	1 "	6.97%
GIRLS						
1st third	6 "	28.7%	5 "	21.08%	7 "	27.5%
2nd third	3 "	8.33%	3 "	10.58%	3 "	9.04%
3rd third	1 "	2.42%	2 "	2.64%	2 "	1.11%
TOTAL						
1st third		29.8%	5 "	24.3%	6 "	28.4%
2nd third		7.74%	3 "	10.4%	3 "	8.8%
3rd third		4.27%	2 "	3.9%	2 "	3.01%

The table clearly shows that pupils who rank high in these qualities stay from two to three times as long as those who rank average and three to six times as long as those ranking below average. In the lower third boys furnished almost as many graduates as in the middle third; but among the girls this is not so, they furnish only about one-fourth as many. In the upper third the boys have a little advantage over the girls in the number of graduates. A pupil in

the upper third has about four times as many chances to graduate as one in the middle third and about seven times those in the lower third.

The table also shows that two-thirds of the boys in the upper third (most promising) do not get to graduate; this loss is even greater with the girls. At best fewer than half of the most promising ones graduate from the high school. In the middle group retardation and elimination is about 10 out of 11, in the lowest group it is 11 out of 12 for the boys and 49 out of 50 for the girls.

Only 12% of those who entered the high school graduated. By the end of the first year 45% of those enrolled had dropped, by the end of the second 64%, end of the third 74%, and the fourth 77%. VanDenburgh felt that 75% of the students had the brains and native ability to graduate if they would apply themselves.

Another early study made shortly after 1900 was the one by William F. Book[1] of Clark University. He found that only about 20% of those who entered high school graduated and that the graduates were mostly girls since four-fifths of the boys dropped out. He asked 773 senior boys and girls and 273 first and

1. Book, W. F., Why Pupils Drop Out of High School Pedagogical Seminar 2: 204-32, June 1904.

second year students to write compositions on high school education, giving their own frank opinion on ten points. One of these points was "Why do so many boys and girls drop out". The reasons for leaving school fell into three divisions: 1. Attractions outside of school (commercial aspirations, desire to get money, poverty in the family, etc.) 2. Individual peculiarities and various adolescent traits. 3. Shortcomings and defects of the school (discouragement, overwork, misunderstanding, dislike for the teacher, etc.). He found the two most important causes to be indifference and discouragement (attraction outside and repulsion inside the school) and that the freshman year was the most critical. He thinks that 75% of the causes are remedial and with the right teachers and the proper administrators the causes could be eliminated.

Thorndike[1] in his statistical study over a four year period found a number of interesting facts. Only about one-fifth of the white children stayed to the fifth grade and fewer than one in ten graduated from the high school. For every 100 girls enrolled in the high school there were only 75 boys and in the senior

1. Thorndike, E. L., Elimination of Pupils From School U.S. Bureau of Education Bulletin No. 4, 1907.

class there were 60% more girls than boys, the boys having been eliminated faster. The nature of the population seemed to affect the amount of elimination more than the course of study and the administration of the school. Cities varied greatly in the amount of elimination that took place. The main cause seemed to be incapacity for or lack of interest in the sort of intellectual work demanded by the course of study at that time.

He too found that early entrance assured longer stay. The child who entered after 14 had a very good chance of being eliminated early. In the high school roughly one-third of a grade dropped without entering the next grade.

Dynes[1] of Missouri Valley College made a study of 23 different classes of the Iowa City High School from September 1897 to and including 1908. The total number studied were 1042, boys 483 (46%), girls 559 (54%). Of that number 491 (47%) graduated and 551 (53%) were eliminated. Of the boys 266 (55%) and of the girls 285 (51%) dropped out. The percentage of elimination by semesters is given in the following table, based on the enrollment

1. Dynes, John J., Relation of Retardation to Elimination of High School Students. Sch. Rev. 22: 396-06.

of 100 at the beginning of the first semester. The line "B" represents boys, "G" girls and "T" totals.

PERCENT OF ELIMINATION BY SEMESTERS

	9A	9B	10A	10B	11A	11B	12A	12B
B	18.84	11.18	9.52	4.94	4.14	3.52	1.24	1.66
G	13.78	10.91	9.66	7.33	3.40	2.68	1.97	1.25
T	16.12	11.04	9.06	6.24	3.74	3.07	1.63	1.44

The table shows a continual decrease in the amount of elimination from the first semester which was the largest. The elimination for the boys was larger than that for the girls. He found a decided qualitative difference between the graduate and the non-graduate in the number of passing grades made by each. The graduate made five times as many passing grades as the non-graduate. He found the median entrance age to be 14-9 and that 68% who entered on or before this graduated as compared to 32% of those who entered later.

Chapter six of Terman[1] showed the entrance age range of 137 entering freshman to be 13-0 to 19-3 with a median of 14-11; mental age range 12-8 to 19-6 and median 15-10. The median entrance age (14-11) was nearly the same as that (14-5) of VanDenburgh[2] in his study of 1000 pupils and that (14-9) of Dynes[3] of 1042 pupils in Iowa City.

1. Terman, Lewis M., Intelligence of School Children. Houghton Mifflin Co., 1919.
2. VanDenburgh, J. K., Causes of Elimination of Students. p. 21, Teachers' College, Columbia, New York.
3. Dynes, John J., Relation of Retardation to Elimination of Pupils from High School. School Review 22: 396.

A table showed that the low 25 percentile had an I.Q. of 96 or below and that only eight cases appeared below 90. The 75 percentile I.Q. was 177 or above. Of the 30 students in this group who entered at the age of 14½ years or younger two had an I.Q. of 110 and 28 had I.Q.'s above 110, while of the 38 who entered at the age of 15½ years and over only two had an I.Q. of 110 and nine ranged between 100 and 110 and 27 were below 100; or in other words, of those who entered later 70% ranked below 100 in I.Q. The conclusion was drawn that if 14½ to 15½ were the normal mental age of freshman then 20% were below normal, that a student with an I.Q. of 90 was almost barred from entrance and that the first year of high school work in California could not successfully be passed by a student with a mental age below 13 and only very poorly by one below 14. They found that success of school work rose and fell with I.Q.

The study of the relation of I.Q. and elimination showed the median for the drops to be only 94 and seven of these had failed in half or more of their work. A student with an I.Q. of 90 rarely gets to graduate, and a third of the children tested this low or lower. Of those having an I.Q. of 95 or lower, 70% failed in half or more of their work.

High school elimination is very selective in that the drops are usually of inferior ability. Mental age

is a very good index to the grade in which a child can do his work in 90 out of 100 cases. Page 303 Richard Allen, Vocational Director of Providence, R.I., says: "Our tests show that almost 90% of retardation in school is without doubt due to inferiority. By placing children of the same mental age together, we have cut down failure at least 50%!

Obrien[1] studied 6,141 pupils in high schools in New York and New Jersey in 1912 to 1926. He found that the younger a student is when he enters the more successful he is in escaping failure and getting to graduate. The percentage of pupils who fail and graduate is the same (31.5%) as that of the ones who do not fail and graduate. Failure is probably not a prime cause of dropping out for most of the non-graduates, since 80% of them have only 5 or fewer failures. Of the 6,141 studied 4,205 (68.4%) were eliminated. Of the 4,205 eliminated 1,757 (41.7%) belonged in the non-failing group.

In his study of the failing group he found that 72% made passing grades the previous semester and the following semester which would indicate that they

1. Obrien, F. P. High School Failures. Contribution to Education No. 102, Teachers College, Columbia, 1919.

lacked neither ability nor application. Failure is more often due to lack of applying the subject matter and the instruction to the needs and abilities of the student than to the lack of ability and application on the part of the student. "Pupil first" not "subject first" should be the ideal of our method of instruction.

A study by Principal Feingold,[1] Director of Intelligence Tests of Hartford, Connecticut, shows the increase in the persistence in high school attendance from 1890 to 1922 in this table:

PERCENT THAT REMAIN IN BY END OF YEAR

	1st year	2nd year	3rd year
1890	59.4	36.8	21.5
1904	60.9	38.7	24.4
1918	67.5	47.2	36.4
1922	70.0	50.0	40.0

In studying the relation of intelligence to elimination he found that one-half of the inferior students were lost by the beginning of the second year and three-fourths by the third year. Fully one-half of the children who enter drop out by the end of the second year.

1. Feingold, G. A. Intelligence and Persistence in High School Attendance. School & Soc. 18: 443-50.

Caldwell[1] while at Chicago University says in his report that the twenty year period (1890 to 1910) only about 12% of the high school enrollment graduated. In one Chicago high school in 1909 of 432 freshmen enrolled 124 (29%) dropped out too soon to make any grades, and a total of 328 (76%) dropped out before they had finished three semesters. His conclusion was that failure to carry the work caused 90% of the drops. As a remedy he recommended sectioning and the combination of the study and recitation periods.

King[2] found that of the total elimination 81% of the boys and 82% of the girls were gone by the end of the second year. The eliminated group had lower grades than the group that stayed. As the grades decrease and failures increased the elimination also increased.

The median entrance age for the total enrollment was 14-9, for the graduates 14-6 and for the non-graduates 15-5. The younger entrant had a better chance to graduate and 79% of the drops occured after the age of 16. He suggests that the relationship between pupil and teacher is the most important thing and that a good

1. Caldwell, Ottis W., No Increase in the Percent of Pupils Who Finish the High School Course. National Educational Association 1912, p. 691-700.
2. King, Irving, High School Age pages 3-6 and 191-207. Dodd Mead and Company, 1914.

advisory system should be very helpful.

In 1905 Johnson[1] studied a group of 500 students as to school marks. He classified them into two divisions, those making high marks and those making low ones. He had a total of 18,926 marks. He found that elimination was more pronounced in the group making low marks than in the group making high ones. That it was larger with girls than with boys except in the high group where more girls dropped than boys. His opinion was that scholarship had a very definite relation to elimination.

Goodrich, while Director of the Department of Measurement and Research of Lincoln, Nebraska, and Clements, during his term as Assistant Principal of Lincoln, Nebraska, in their study[2] found that the successful students were one year younger and had an I.Q. average seven points higher than the unsuccessful one. In academic work the 25 percentile of the successful group was as high as the 75 percentile of the unsuccessful group. They concluded that one-fourth of the unsatisfactory group could do academic work without difficulty, one-half could do it with reasonable effort and one-fourth would be seriously handicapped. The number of credits did not depend upon

1. Johnson, George R., Qualitative Elimination From High School. School Review 18: 680-94.

2. Goodrich and Clements, Comparison of Grades of High School Failures With Grades of Successful Students. School and Society 18: 715-20.

I.Q.; the high I.Q. group admitted lack of study, the low one lack of interest more often. There was a decided tendency to elimination of pupils with low class marks, especially boys.

In his study of Army Alpha scores and elimination, Ellis[1] of Syracuse University used 512 freshman who entered in 1921 and then followed them till they graduated from the Knoxville, Tenn. High School four years later. The median score for the 512 was 93.5, for the non-graduates 89.2, and the graduates 100.8. He concluded that the entrance age was a better indicator of the probability of finishing than the Army Alpha score. The table shows the entrance age, the number tested for each age group, the number graduated, and the percentage of those tested that graduated for each age group.

Entrance Age and Graduation

Age of fresh.	12.5	13.5	14.5	15.5	16.5	17.5
No. Tested	5	63	136	137	69	18
No Graduated	5	33	77	43	18	5
% Graduated	100	52	57	31	26	28

The older the student when he enters the less chance for graduation, especially after the age of 15.

1. Ellis, Robert S., Army Alpha Scores in Relation to Progress in High School. School & Soc. 22: 439-0.

Foster of Washington University made a study[1] of the elimination problem in one of the boys high schools in a city on the West coast. This boys' high school offered a technical course of four years and a vocational one of three years. The technical one required more mathematics and science. The table shows the enrollment, the attendance and number of drops for each course.

	TECHNICAL	VOCATIONAL
Enrollment	892	783
% of Attendance	86.8	76.8
Average days attended by drops	24.1	17.4
Drops who made no grades	53	110
No. of drops & %	95 (10.7%)	115 (19.8%)

He too found that high schools in better residential districts had a better record. He thinks that a good program of educational and vocational guidance would help this problem.

Turney of the University of Kansas in his study[2] of achieving and non-achieving pupils found that I.Q. was not the only factor in school success. Industry,

1. Foster, Frank K., Study in Elimination in a Boys Technical-Vocational School. School Rev. 36: 58-66.
2. Turney, Austin A., A Study of Achieving and Non-achieving Pupils. School Review 35: 289-98.

perseverence, ambition, dependability, accuracy, and common sense played a greater part than I.Q.

There are other factors besides I.Q. and failure in school work that effect persistence in high school. By means of a questionnaire answered by 1436 boys and girls Gray[1] found that 10% of all who enrolled left because of ill health, but that ill health caused only 23% of the total losses, that services needed by the family 34%, and that lack of interest and hate of school 36%, and that the percentage of drops varied in different communities. Grades played a big part in giving the pupil the proper attitude toward school.

Superintendent Malone of Minneapolis in his study[2] of the draft statistics during The War found that the residential district from which the young man came had much to do with the amount of schooling that he got. He found that the ones from the poor districts had only about one chance in five as compared with those of the better districts of getting a high school education.

Adams in his study[3] of vocational and non-vocational schools found that there was no difference between them in elimination. In this study he used 995 students

1. Gray, George E., "Why Pupils Leave High School Without Graduating". Education 22: 300-307.
2. Malone, T. J., "When Boys Leave School". Review of Reviews 60: 627-30.
3. Adams, J. E., "Reaction of High School Pupils Towards High School Subjects". Sch. R. 35: 354-9 & 417-27.

from non-vocational schools and 926 from vocational. He too found the percentage of failures decreasing in the later years of the high school. In the freshman year 61.8% of the failures occurred, second year 28.6%, and 9.6% in the third year.

In his study[1] of 1680 pupils in the Syracuse, New York, High School in 1920-21 Eaton of the Syracuse University, found that the elimination was distributed in this manner: freshmen 52.6%, sophomores 20.4%, juniors 20.4%, and seniors and post-graduates 6.6%. He also found that 169 or 10% of those enrolled dropped out during the year. Of this number 20% left without making any record, and about 40% of the drops are from 75 to 100% failures in all their work. The group that dropped made about 2¾ times as many failures as the group that remained.

In his study of 20 repeaters in the same high school, Eaton[2] found that 75% of these had an I.Q. below 100, whereas in the whole high school only 57% ranked below the average high school I.Q. of 107. The repeaters are of two kinds, lazy and low I.Q.

In order to reduce elimination it will be necessary for the high schools to provide something that

1. Eaton, H. T., "Scholarship of Pupils Who Left", School and Society 16: 221, August 19, 1922.
2. Eaton, H. T., "Intelligence of Pupils Who Repeat", School and Society 17: 139-40, February 3, 1923.

the group with low I.Q.'s can do. Margaret M. Alltucker, Editor of the year books for the Department of Superintendents of the N.E.A., found in her study[1] of 1400 entering pupils of the Berkley, California, High School that 57% had an I.Q. below 100, that 26% were below 95, and 37% of the drops came from this group.

The percentage that graduates from high school seems to have increased. In the earlier studies 12% is the one mentioned most often. In a study[2] made by Principal Lockhart of the Lockport Township High School, Ill, of the failures in his high school using the classes 1909 to 1923 he found that 37% had graduated. He also found that the drops failed more often and in more subjects.

From the literature that has been reviewed we see that elimination is larger in the early years of the high school and for the failing pupils, that it is affected by I.Q., determination to finish, economic condition of the family and other factors, and varies in different communities. There is no general rule or formula and each administrator must study this problem for his own system if he intends to meet it properly.

1. Alltucker, Margaret M., "What Can the Secondary School Do For the Student With a Low I.Q."? School Review 31: 653-61, November, 1923.
2. Lockhart, A. V., "Failures in Lockport, Illinois", School Review 33: 13-14, January, 1925.

CHAPTER III.

SPECIFIC FIELD.

The enrollment in the Augusta (Kansas) High School has increased from 205 to 366 in the last ten years. The high school moved into a new building in 1922-23 which gave an opportunity to expand the curriculum. Additional work could be offered in the commercial line and in woodworking. The work in music was increased and varied. Physical education and training for boys and girls was added to the course. An athletic director was employed by the Board of Education to improve the opportunity for the various sports. In 1924-25 a manual arts building was erected and vocational agriculture was added to the course of study. All this made the high school more attractive to a larger number of students; and they came as the increase in the enrollment indicates.

Interesting and encouraging as all this might be the writer had occasion to observe that the percentage of elimination always seemed too large. Why should so many drop out when so much was offered that should interest and appeal to the various students? This attracted the writer's attention and he decided to study the elimination problem as it affected the Augusta High School.

He was especially interested to find what might be the relation between elimination and intelligence quotients. Would he find as Proctor[1] did that one-half of those who tested below standard would drop out before finishing their second year's work, and that only a negligible number of these with a low I.Q. would ever graduate? Would more than half of the entering students in this high school test below an I.Q. of 100 as Margaret Alltucker[2] found in Berkley, California? How does I.Q. effect elimination?

A number of other questions came to the writer's mind, which he hoped to be able to answer through this study. How does the entrance age affect elimination? At what ages is elimination the largest? During what semester do most of the drops occur? Do more boys than girls fail to graduate? Is the proportion of elimination based on the enrollment on the increase or on the decrease? As the data are presented in chapter V some of these will be answered.

1. Proctor, W. M., Psychological Tests and Guidance of High School Pupils. Journal of Educational Research Monograph No. 1, June 1921, Public School Publishing Co., Bloomington, Illinois. (p. 22).
2. Alltucker, Margaret, What Can the Secondary School Do For the Student With Low I.Q.? School Review 31: 653; November, 1923.

CHAPTER IV.

SOURCE OF MATERIAL AND METHOD OF STUDY.

As principal, the writer was familiar with all the Augusta High School records and had access to them at any time that he might wish to use them. The entrance date for all students, the number of semesters attended, and the date of eliminations were obtained from the attendance record. The principal's annual report gave the total enrollment, the number graduated and the number dropped. The pupil's permanent record gave the number of semester credits earned, the failures made, and in the case of the last three classes the reasons for leaving school.

Beginning with the school year of 1921-22 the Terman Group Tests of Mental Ability were given to all high school pupils. These were graded, scored and checked by the teachers. Every test was graded, scored, and checked by two or more different individuals to guard against mistakes. The front page of each test had the student's name, his chronological age, mental age, test score, and I.Q. This record was made by the office

force; again care was taken to avoid mistakes by having the work checked by different individuals.

Terman's Manual of Directions was used to translate the test scores into mental ages. After the chronological and mental ages had been recorded on the test, Alexander Inglis' "Intelligence Quotient Values"[1] was used to figure the I.Q. This cannot be used for mental ages above 16. These were computed by the use of the Manual of Instruction for Army Alpha Intelligence Tests Forms V, VI, VII, VIII, and IX in Public Schools adapted by DeVoss[2].

All tests were arranged alphabetically for each class by boys and girls. This made it easy at any time to find a pupil's score, mental age, or I.Q. For a number of students two or three tests had been given and graded; these were all listed at the above named place. In case of several tests the one giving the highest I.Q. was used. A sample of the arrangement will be found in the appendix. Every student who failed to graduate and dropped out was checked on these lists.

All the tests from which the I.Q.'s were used in this study were then ranked as to I.Q. for each class

1. Alexander Inglis "Intelligence Quiotent Values". World Book Co., 1921.
2. Manual of Instruction for Army Alpha Tests adapted by James DeVoss, Bureau of Educ. Meas. & Stand., Emporia, 1922.

and by boys and girls separately (sample in appendix). In the original ranking the initials were used for purposes of identification. Here also each student who dropped out was checked. This arrangement made the data easily accessible for the study.

For each pupil studied the writer knew the class to which the student belonged, his entrance age, mental age, I.Q., score on the Terman Tests, the number of semester credits, and semester failures. He also had knowledge as to whether the pupil graduated or dropped out, the age at which he dropped out and the possible reasons for his failure to graduate.

If a student had moved away and had been graduated in another school, he was counted with the graduates and not as a loss. If he moved and did not go on with his work, he was counted as eliminated. If the writer did not know what became of the student after he moved, he was omitted from the study, and so marked. The total in this study does not agree with the total on school record due to the deduction of those omitted from the study for lack of information.

The study takes the different data found in the above-named places and sources and combines these in various tables to show the different facts in connection with the problem of elimination.

CHAPTER V.

PRESENTATION and INTERPRETATION OF DATA.

In his study the writer found that he could use a total of 598 pupils of the seven classes. The distribution of these is shown in table No. 1 on the next page. This table gives for each of the seven classes studied the number of boys, the number of girls, and the total, as well as what percentage each is of the total.

From the table it will be noticed that the total of 598 is made up of 258 or 43% boys and 340 or 57% girls. It also shows that every class had a greater percentage of girls than boys with the exception of the classes of 1926 and 1927 when the boys held the lead by a very narrow margin. The enrollment for every year was larger than the one for the preceeding year. During the last four years the enrollment was two or more times larger than the first year.

TABLE No. I.

DISTRIBUTION OF PUPILS STUDIED
by
BOYS AND GIRLS

Class	Boys	Girls	Total
1923	15 (32%)	32 (68%)	47 (100%)
1924	22 (40%)	34 (60%)	56 (100%)
1925	21 (34%)	41 (66%)	62 (100%)
1926	50 (52%)	46 (48%)	96 (100%)
1927	53 (52%)	50 (48%)	103 (100%)
1928	41 (39%)	65 (61%)	106 (100%)
1929	56 (44%)	72 (56%)	128 (100%)
Totals	258 (43%)	340 (57%)	598 (100%)

On the next page table No. II. gives the distribution of the students studied by boys and girls according to I.Q. groupings. In order to see whether the losses were larger in the lower than in the higher I.Q. ranges, it was decided to make two I.Q. groupings. An I.Q. of 100 was taken as a dividing point. All pupils with an I.Q. of 100 or more were placed in the "high group" and those with an I.Q. of less than 100 in the "low group".

This table shows that the distribution as to the high and low groupings is rather even. The boys had a few more in the low grouping making that percentage 55 as compared with 45 in the high group. For the girls the high group was just slightly larger, making the percentage 51 to 49 in the low group. For the total the percentage was just about the same, the high 48⅔% and the low 51⅓%.

TABLE No. II.

DISTRIBUTION OF BOYS AND GIRLS

AS TO I.Q. GROUPINGS.

	Number Tested	Number in High Group	Number in Low Group.
Boys	258	116	142
Percentage	100	45	55
Girls	340	174	166
Percentage	100	51	49
Total	598	290	308
Percentage	100	48½	51½

To study the problem of the relation between I.Q. and elimination, the members of each of the seven classes were divided into twelve groups on the basis of I.Q. This basis being on a five point scale with the exception of the highest group which included all students with an I.Q. of 125 or more, and the lowest group which included all students with an I.Q. of 74 or less.

The members were also grouped as to boys, girls, and totals. For each of these groups the number tested, the number graduated, and the number lost in each I.Q. range is given. In order to get an easy comparison of the losses in the high group with those in the low group, the totals were brought to-gether in the center of the table. There are found the totals for the high and low groups and the total for these two, which is the total for the class.

At the foot of each table is found a summary of the losses for the high and low groups by boys and girls separately and a total for the whole class. These losses are again expressed in percentages for convenience.

TABLE III-A

SHOWING NUMBERS TESTED, GRADUATED, AND LOST
For
CLASS OF 1923.

I.Q. Range	BOYS			GIRLS			TOTAL		
	Number Tested	Number Graduated	Number Lost	Number Tested	Number Graduated	Number Lost	Number Tested	Number Graduated	Number Lost
125-plus	0			0			0		
120-124	0			0			0		
115-119	2	2	0	1	1	0	3	3	0
110-114	4	4	0	3	3	0	7	7	0
105-109	2	2	0	5	4	1	7	6	1
100-104	0			8	7	1	8	7	1
No.above 100	8	8	0	17	15	2	25	23	2
Total	15	14	1	32	29	3	47	43	4
No.below 100	7	6	1	15	14	1	22	20	2
95-99	4	4	0	8	8	0	12	12	0
90-94	2	2	0	4	4	0	6	6	0
85-89	1	0	1	1	1	0	2	1	1
80-84	0			1	0	1	1	0	1
75-79	0			1	1	0	1	1	0
Below 75	0			0			0		

Median I.Q. Boys 109, Girls 102, Total 102

HIGH I.Q. LOSS		LOW I.Q. LOSS		TOTAL LOSSES	
Boys	none	Boys	1/7 - 14%	Boys	1/15 - 7%
Girls	2/17 - 12%	Girls	1/15 - 7	Girls	3/32 - 9
Total	2/25 - 8	Total	2/22 - 9	Total	4/47 - 9

TABLE III-B

STUDENTS TESTED AND GRADUATED OR LOST
For
CLASS OF 1924.

I.Q. Range	BOYS Number Tested	BOYS Number Graduated	BOYS Number Lost	GIRLS Number Tested	GIRLS Number Graduated	GIRLS Number Lost	TOTAL Number Tested	TOTAL Number Graduated	TOTAL Number Lost
125-plus	1	1	0	1	1	0	2	2	0
120-124	0			0			0		
115-119	1	1	0	1	1	0	2	2	0
110-114	1	1	0	2	2	0	3	3	0
105-109	4	2	2	9	9	0	13	11	2
100-104	6	6	0	13	11	2	19	17	2
No. above 100	13	11	2	26	24	2	39	35	4
Total	22	17	5	34	30	4	56	47	9
No. below 100	9	6	3	8	6	2	17	12	5
95-99	7	5	2	3	3	0	10	8	2
90-94	1	1	0	4	3	1	5	4	1
85-89	1	0	1	0			1	0	1
80-84	0			0			0		
75-79	0			1	0	1	1	0	1
Below 75	0			0			0		

Median I.Q. Boys 102, Girls 104, Total 103

HIGH I.Q. LOSS	LOW I.Q. LOSS	TOTAL LOSSES
Boys 2/13 - 15%	Boys 3/9 - 33%	Boys 5/22 - 23%
Girls 2/26 - 8	Girls 2/8 - 25	Girls 4/34 - 12
Total 4/39 - 10	Total 5/17 - 30	Total 9/56 - 16

TABLE III-C

STUDENTS TESTED AND GRADUATED OR LOST
For
CLASS OF 1925.

I.Q. Range	BOYS Number Tested	BOYS Number Graduated	BOYS Number Lost	GIRLS Number Tested	GIRLS Number Graduated	GIRLS Number Lost	TOTAL Number Tested	TOTAL Number Graduated	TOTAL Number Lost
125-plus	0			1	1	0	1	1	0
120-124	0			1	1	0	1	1	0
115-119	1	1	0	1	1	0	2	2	0
110-114	1	0	1	7	7	0	8	7	1
105-109	3	1	2	3	2	1	6	3	3
100-104	3	3	0	9	7	2	12	10	2
No. above 100	8	5	3	22	19	3	30	24	6
Total	21	11	10	41	33	8	62	44	18
No. below 100	13	6	7	19	14	5	32	20	12
95-99	5	4	1	11	10	1	16	14	2
90-94	2	0	2	4	1	3	6	1	5
85-89	5	2	3	3	2	1	8	4	4
80-84	1	0	1	1	1	0	2	1	1
75-79	0			0			0		
Below 75	0			0			0		

Median I.Q. Boys 95, Girls 101, Total 99

HIGH I.Q. LOSS		LOW I.Q. LOSS		TOTAL LOSSES	
Boys	3/8 - 38%	Boys	7/13 - 54%	Boys	10/21 - 48%
Girls	3/22 - 14	Girls	5/19 - 26	Girls	8/41 - 20
Total	6/30 - 20	Total	12/32 - 38	Total	18/62 - 29

TABLE III-D

STUDENTS TESTED AND GRADUATED OR LOST
For
CLASS OF 1926.

I.Q. Range	BOYS Number Tested	BOYS Number Graduated	BOYS Number Lost	GIRLS Number Tested	GIRLS Number Graduated	GIRLS Number Lost	TOTAL Number Tested	TOTAL Number Graduated	TOTAL Number Lost
125-plus	2	2	0	0			2	2	0
120-124	0			0			0		
115-119	6	5	1	5	3	2	11	8	3
110-114	3	1	2	3	2	1	6	3	3
105-109	6	4	2	4	4	0	10	8	2
100-104	8	5	3	6	6	0	14	11	3
No. above 100	25	17	8	18	15	3	43	32	11
Totals	50	26	24	46	29	17	96	55	41
No. below 100	25	9	16	28	14	14	53	23	30
95-99	9	5	4	6	4	2	15	9	6
90-94	5	3	2	7	6	1	12	9	3
85-89	7	1	6	9	3	6	16	4	12
80-84	4	0	4	6	1	5	10	1	9
75-79	0			0			0		
Below 75	0			0			0		

Median I.Q. Boys 100, Girls 95, Total 97

HIGH I.Q. LOSS	LOW I.Q. LOSS	TOTAL LOSSES
Boys 8/25 - 32%	Boys 16/25 - 64%	Boys 24/50 -48%
Girls 3/18 - 17	Girls 14/28 - 50	Girls 17/46 -37
Totals 11/43 - 25	Totals30/53 - 57	Totals 14/96 -43

TABLE III-E

STUDENTS TESTED AND GRADUATED OR LOST
For
CLASS OF 1927.

I.Q. Range	BOYS Number Tested	BOYS Number Graduated	BOYS Number Lost	GIRLS Number Tested	GIRLS Number Graduated	GIRLS Number Lost	TOTAL Number Tested	TOTAL Number Graduated	TOTAL Number Lost
125-plus	0			3	3	0	3	3	0
120-124	3	3	0	2	2	0	5	5	0
115-119	4	3	1	4	4	0	8	7	1
110-114	0			1	1	0	1	1	0
105-109	4	1	3	5	5	0	9	6	3
100-104	7	4	3	8	6	2	15	10	5
No. above 100	18	11	7	23	21	2	41	32	9
Totals	53	26	27	50	33	17	103	59	44
No. below 100	35	15	20	27	12	15	62	27	35
95-99	8	5	3	6	3	3	14	8	6
90-94	12	3	9	6	2	4	18	5	13
85-89	9	5	4	8	4	4	17	9	8
80-84	4	2	2	4	3	1	8	5	3
75-79	1	0	1	2	0	2	3	0	3
Below 75	1	0	1	1	0	1	2	0	2

Median I.Q. Boys 98, Girls 94, Total 95

HIGH I. Q. LOSS	LOW I. Q. LOSS	TOTAL LOSSES
Boys 7/18 - 39%	Boys 20/35 - 57%	Boys 27/53 - 51%
Girls 2/23 - 9	Girls 15/27 - 56	Girls 17/50 - 34
Total 9/41 - 22	Total 35/62 - 56	Total 44/103- 43

TABLE III-F

STUDENTS TESTED AND GRADUATED OR LOST
For
CLASS OF 1928.

I.Q. Range	BOYS Number Tested	BOYS Number Graduated	BOYS Number Lost	GIRLS Number Tested	GIRLS Number Graduated	GIRLS Number Lost	TOTAL Number Tested	TOTAL Number Graduated	TOTAL Number Lost
125-plus	2	2	0	4	4	0	6	6	0
120-124	1	1	0	1	1	0	2	2	0
115-119	3	2	1	5	4	1	8	6	2
110-114	3	3	0	6	4	2	9	7	2
105-109	3	2	1	10	9	1	13	11	2
100-104	8	7	1	11	9	2	19	16	3
No. above 100	20	17	3	37	31	6	57	48	9
Total	41	22	19	65	45	20	106	67	39
No. below 100	21	5	16	28	14	14	49	19	30
95-99	4	1	3	6	3	3	10	4	6
90-94	10	4	6	9	7	2	19	11	8
85-89	4	0	4	4	1	3	8	1	7
80-84	2	0	2	6	3	3	8	3	5
75-79	1	0	1	1	0	1	2	0	2
Below 75	0			2	0	2	2	0	2

Median I.Q. Boys 98, Girls 101, Total 101

HIGH I.Q. LOSS	LOW I.Q. LOSS	TOTAL LOSSES
Boys 3/20 - 15%	Boys 16/21 - 76%	Boys 19/41 - 46%
Girls 6/37 - 16	Girls 14/28 - 50	Girls 20/65 - 31
Total 9/57 - 16	Total 30/49 - 61	Total 39/106- 37

TABLE III-G

STUDENTS TESTED AND GRADUATED OR LOST
For
CLASS OF 1929.

I.Q. Range	BOYS			GIRLS			TOTAL		
	Number Tested	Number Graduated	Number Lost	Number Tested	Number Graduated	Number Lost	Number Tested	Number Graduated	Number Lost
125-plus	3	3	0	1	1	0	4	4	0
120-124	1	1	0	0			1	1	0
115-119	2	2	0	1	1	0	3	3	0
110-114	5	5	0	8	6	2	13	11	2
105-109	7	5	2	10	9	1	17	14	3
100-104	6	5	1	11	7	4	17	12	5
No. above 100	24	21	3	31	24	7	55	45	10
Total	56	37	19	72	40	32	128	77	51
No. below 100	32	16	16	41	16	25	73	32	41
95-99	8	7	1	14	10	4	23	17	6
90-94	10	5	5	10	3	7	19	8	11
85-89	8	2	6	7	1	6	15	3	12
80-84	3	1	2	8	2	6	11	3	8
75-79	3	1	2	2	0	2	5	1	4
Below 75	0			0			0		

Median I.Q. Boys 95, Girls 98, Total 97

HIGH I.Q. LOSS	LOW I.Q. LOSS	TOTAL LOSSES
Boys 3/24 - 13%	Boys 16/32 - 50%	Boys 19/56 - 34%
Girls 7/31 - 23	Girls 25/41 - 61	Girls 32/72 - 44
Total 10/55 - 18	Total 41/73 - 56	Total 51/128- 40

Table No. IV-A shows the summary of the losses for the boys that have occurred in the seven classes. These losses are given for the high group, the low one, the total, and according to classes. Again for convenience the percentage is figured. By having the percentage as well as the number lost, it is easy to compare the losses in the high group with those in the low and to see which is greater and how much. Table IV-B gives the same for the girls and table IV-C for the totals.

At the bottom of each table is found another summary of all the classes for the high, low, and total groupings. This shows the number tested and the number and percentage that each group (high and low) is of the whole. It also shows the number and what percentage of each group (high and low) is lost; and the total number lost and what percentage this loss is of the total group studied.

TABLE IV-A

SUMMARY OF BOYS' LOSSES.

Class	HIGH I.Q. Number Tested	HIGH I.Q. Number Lost	HIGH I.Q. Percent of Loss	LOW I.Q. Number Tested	LOW I.Q. Number Lost	LOW I.Q. Percent of Loss	TOTAL Number Tested	TOTAL Number Lost	TOTAL Percent of Loss
1923	8	0	0	7	1	14	15	1	7
1924	13	2	15	9	3	33	22	5	23
1925	8	3	38	13	7	54	21	10	48
1926	25	8	32	25	16	64	50	24	48
1927	18	7	39	35	20	57	53	27	51
1928	20	3	15	21	16	76	41	19	46
1929	24	3	13	32	16	50	56	19	34
Total	116	26	23	142	79	56	258	105	41

SUMMARY OF LOSSES BY I.Q.'s.

	HIGH	LOW	TOTAL
Number Tested	116 (45%)	142 (55%)	258 (100%)
Number Lost	26	79	105
Percentage of Loss*	23	56	41

*Percentage of loss is figured on the number in the I.Q. group (26/116 or 23%).

TABLE IV-B

SUMMARY OF GIRLS' LOSSES.

	HIGH I.Q.			LOW I.Q.			TOTAL		
Class	Number Tested	Number Lost	Percent Lost	Number Tested	Number Lost	Percent Lost	Number Tested	Number Lost	Percent Lost
1923	17	2	12	15	1	7	32	3	9
1924	26	2	8	8	2	25	34	4	12
1925	22	3	14	19	5	26	41	8	20
1926	18	3	17	28	14	50	46	17	37
1927	23	2	9	27	15	56	50	17	34
1928	37	6	16	28	14	50	65	20	31
1929	31	7	23	41	25	61	72	32	44
Total	174	25	14	166	76	46	340	101	30

SUMMARY OF LOSSES BY I.Q.'s.

	HIGH	LOW	TOTAL
Number Tested	174 (56%)	166 (44%)	340 (100%)
Number Lost	25	76	101
Percentage of Loss*	14	46	30

*Percentage of loss is figured on the number in the I.Q. group (25/174 or 14%).

TABLE IV-C

SUMMARY OF TOTAL BOYS' AND GIRLS' LOSSES.

	HIGH I.Q.			LOW I.Q.			TOTAL		
Class	Number Tested	Number Lost	Percent Lost	Number Tested	Number Lost	Percent Lost	Number Tested	Number Lost	Percent Lost
1923	25	2	8	22	2	9	47	4	8 1/3
1924	39	4	10	17	5	29	56	9	16
1925	30	6	20	32	12	38	62	18	29
1926	43	11	26	53	30	57	96	41	43
1927	41	9	22	62	35	56	103	44	43
1928	57	9	16	49	30	61	106	39	37
1929	55	10	18	73	41	56	128	51	40
Totals	290	51	18	308	155	50	598	206	34 1/3

SUMMARY OF BOYS' AND GIRLS' LOSSES BY I.Q.'s.

	HIGH	LOW	TOTAL
Boys Tested	116 (45%)	142 (55%)	258 (100%)
Boys Lost	26 (23%)*	79 (56%)	105 (41%)
Girls Tested	174 (56%)	166 (44%)	340 (100%)
Girls Lost	25 (14%)	76 (45%)	101 (30%)
Total Tested	290 (48 1/2%)	308 (51 1/2%)	598 (100%)
Total Lost	51 (18%)	155 (50%)	206 (34 1/2%)

*Based on number in high group (26/116 or 23%).

A number of interesting facts can be pointed to that were brought out by the preceeding tables and summaries. For the class of 1923 (table III-A) neither boys nor girls had an I.Q. ranging more than 120. There did not seem to be any exceptionally bright ones in the group. Neither did they rank exceptionally low so the range was rather limited, and the class as a whole was of rather uniform ability. In the class of 1925 (table III-C) the same thing occurred for the boys and in the class of 1926 (table III-D) for the girls. In all other classes there were always some members who tested 120 and above.

The percentage of loss in the classes of 1923 and 1924 (tables III-A and III-B) is exceptionally low when compared with that of the others. This is undoubtedly partly accounted for by the fact that the members of the class of 1923 were tested in either their fifth or seventh semester attendance, those of 1924 in their third or fifth semester. This gave the "process of elimination" from two to six semesters to work on these classes. During this time a large number of the suspected drops have been eliminated before they were tested and used in this study. Even though the elimination is small in these two classes when compared

with that of the other classes, it is not so when we remember that they were tested in their second or third year and that by this time a large amount of elimination had taken place. In studying the total losses in tables IV, we find that they are always larger in the low group than in the high group except for the girls of the class of 1923. The two girls in that high group who did not graduate decided to try matrimony before completing their high school work. Generally speaking, for the boys the percentage in the low group is twice that in the high one based on the number in the group.

Of the high group about ¼ (23%) dropped out (table IV-A) and of the low group more than ½ (56%). This seems to indicate that of the low group about one-half will leave before graduation and of the high about one-fourth. Table IV-A shows a decline in the percentage of elimination for the boys. This may mean that the Augusta High School has at least partly solved the problem of elimination for the boys. Even with this improvement, there is a problem when still one-half to three-fourths of the low group leave and one-eighth to one-seventh of the high.

The elimination problem for the girls (table IV-B)

is not so hopeful. In each, the high and low group, there does not seem to be a decline but an increase. The class of 1929 showed an increased percentage of elimination in both groups. In neither group is there a consistant increase and then a decrease, as with the boys, but both are erratic. The last class had the highest percentage by five points of all classes. By taking the last four classes in the low group the percentage of elimination figures 59. Of the total girls (340) tested, 174 or 56% were in the high group and of this number 25 or 14% failed to graduate. Of the 166 in the low group 76 nearly one-half (46%) did not finish their high school work. Almost one-third (30%) of all the girls tested did not complete their high school work.

In studying the total losses from table IV-C we see that 290 almost one-half (48½%) of the 598 pupils were in the high group and 308 (51½%) in the low. Of the high group 51 or 18% were eliminated and of the low group 155 (50%). Of the total number tested 206 or 34½% were eliminated. Looking at the column "percent lost" under totals in this table, we see that the percent of elimination has been about the same for the last four years. The last two it was a little less

than the two preceeding ones; this would indicate that the problem is partly under control now and the amount of elimination might begin to decrease.

Studying the total number eliminated, we find them distributed by boys and girls in table No. V. Here we see what percentage of the loss for each class is made by the boys and the girls. In only three classes did the girls have a larger percentage of eliminations than the boys. This also brings out the fact that the problem of elimination has not been met for the girls as for the boys as can be seen by the increase in the percentage of girls' losses for the last two years.

Of the total (206) eliminated the boys are charged with 105 or 51% and the girls with 101 or 49%. For the seven classes the boys as a whole have contributed a larger number of those eliminated than the girls.

When the losses are distributed as to I.Q. grouping, we find that one-fourth (25%) of the boys' losses occur in the high group and three-fourths in the low group. For the girls this was 24% and 76% respectively. Of the total, 206 losses, 51 or 24¾% occurred in the high group and 155 or 75¼% in the low group. In other words, for one loss in the high group there are three in the low group. The elimination problem is largest in the low group.

TABLE V.

DISTRIBUTION OF TOTAL LOSSES

BY

BOYS AND GIRLS.

CLASS	TOTAL	BOYS	GIRLS
1923	4	1-25%	3-75%
1924	9	5-55⅓%	4-44⅔%
1925	18	10-55½%	8-44½%
1926	41	24-58½%	17-41⅓%
1927	44	27-61%	17-39%
1928	39	19-49%	20-51%
1929	51	19-37%	32-63%
TOTALS	206	105-51%	101-49%

DISTRIBUTION OF TOTAL LOSSES BY I.Q.

	TOTAL	HIGH I.Q.	LOW I.Q.
BOYS	105	26-25%	79-75%
GIRLS	101	25-24%	76-76%
TOTALS	206	51-24¾%	155-75¼%

The enrollment in the Augusta High School made a marked increase in the twelve year period from 1917-18 to 1928-29. Table No. VI. shows that this increase was constant for each year with the exception of the year 1926-27 which showed a slight decrease in the number enrolled as compared with the two preceeding years. Figured on the basis of the enrollment of 1919-20 the increase in the enrollment was about 80%.

TABLE VI.

DISTRIBUTION OF THE ENROLLMENT FOR THE TWELVE YEAR PERIOD 1918-1929.

Year	Boys	Girls	Total
1917-18	65	97	162
1918-19	73	115	188
1919-20	83	122	205
1920-21	104	128	232
1921-22	102	156	258
1922-23	139	177	316
1923-24	153	167	320
1924-25	150	177	327
1925-26	150	181	331
1926-27	145	176	321
1927-28	158	175	333
1928-29	185	181	366

Another way to get at the elimination problem, is to find what percent the number of graduates are of the number enrolled for the year. Tables VII-A, B, C give this information. These tables show the number enrolled, the number that were graduated, and the percent that the number graduated are of the enrolled. The tables first give this for boys and girls separately, and then the total is given. Since the facts were available for a twelve year period the writer made use of all of them. To show the increase in the percent of graduation each table has been summarizes in two parts of six years each.

That there has been a decided increase is shown in the summary of the tables for the two six year periods. In the second period there is a material increase in the percentage of graduates over the first period.

We also notice that the percentage of girls who graduate is larger and is increasing faster. This would indicate that the girls are making more use of the high school opportunities than the boys.

TABLE VII-A

COMPARISON OF THE NUMBER OF BOYS ENROLLED AND GRADUATED DURING THE TWELVE YEAR PERIOD.

YEAR	ENROLLMENT	GRADUATES	
		Number	Percentage
1917-18	65	11	17
1918-19	73	5	7
1919-20	83	7	8½
1920-21	104	11	11
1921-22	102	12	12
1922-23	139	12	9
1923-24	153	17	11
1924-25	150	10	8
1925-26	150	25	17
1926-27	145	18	12
1927-28	158	18	11
1928-29	185	24	13
TOTALS	1507	170	11.3
First six year period (1917-1923)	566	58	10
Sec. six year period (1924-1929)	941	112	12
Total	1507	170	11.3

TABLE VII-B

COMPARISON OF THE NUMBER OF GIRLS ENROLLED AND GRADUATED DURING THE TWELVE YEAR PERIOD.

YEAR	ENROLLMENT	GRADUATES	
		Number	Percentage
1917-18	97	9	9
1918-19	115	9	8
1919-20	122	10	8
1920-21	128	15	12
1921-22	156	13	8
1922-23	177	29	16
1923-24	167	30	18
1924-25	177	30	17
1925-26	181	21	12
1926-27	176	27	15
1927-28	175	31	18
1928-29	181	32	18
TOTALS	1852	256	14
First six year period (1917-23)	795	85	10⅛
Sec. six year period (1924-29)	1057	171	16
Total	1852	256	14

TABLE VII-C

COMPARISON OF THE NUMBER OF BOYS AND GIRLS ENROLLED AND GRADUATED DURING THE TWELVE YEAR PERIOD.

YEAR	ENROLLMENT	GRADUATES	
		Number	Percentage
1917-18	162	20	9
1918-19	188	14	10
1919-20	205	17	9
1920-21	232	26	11
1921-22	258	25	10
1922-23	316	41	13
1923-24	320	47	16
1924-25	327	40	12
1925-26	331	46	14
1926-27	321	45	14
1927-28	333	49	15
1928-29	366	56	15
TOTALS	3359	426	13
First six year period (1918-1923)	1361	143	10½
Sec. six year period (1924-1929)	1998	283	14
Total	3359	426	13

Table VIII presents the relation between the entrance age and graduation. From this we see that the median entrance age for the 153 boys was two months more than that for the 239 girls and for both it was 14 years and seven and a half months. We also see that about one-half of the graduating high school students enter during the one and one-half year period from 14 years to 15 years and six months. More than three-fourths enter between the time they are 13 years six months old and their sixteenth birthday. The number of entries above sixteen years and especially sixteen and one-half years is almost negligible.

On the other hand, there is encouragement when we find that four boys and two girls who could not enter high school earlier came even after they were more than 18 years old and stayed till they finished. In each case either physical ailment or financial or other family circumstances kept these people from starting.

The youngest pupil, a girl, entered at the age of 11 years nine months. There were three other girls who entered before they were 12 years six months old. The youngest boy entered at 12 years four months. It was interesting to note that the youngest boy and girl came from the same family and that their I.Q. ranking was 110 and 136 respectively. Both were known for their determination and persistence.

TABLE VIII.

RELATION OF ENTRANCE AGE TO GRADUATION.

	Number graduated.		
Entrance Age	Boys	Girls	Total
12-0 to 12-11	4	8	12
13-0 to 13-5	6	17	23
13-6 to 13-11	19	43	62
14-0 to 14-5	37	48	85
14-6 to 14-11	25	41	66
15-0 to 15-5	27	38	65
15-6 to 15-11	7	17	24
16-0 to 16-5	16	11	27
16-6 to 16-11	5	8	13
17-0 to 17-5	3	6	9
17-6 to 17-11	0	0	0
18 and over	4	2	6
Totals	153	239	392
Medians	14-8$\frac{1}{8}$	14-6$\frac{1}{8}$	14-7$\frac{1}{8}$
Q1	14-1$\frac{1}{8}$	13-10$\frac{3}{4}$	14-0
Q3	15-5$\frac{1}{4}$	15-2$\frac{1}{8}$	15-4

In studying the relation of entrance age to elimination, (Tables IX-A, B, C) the total eliminated (206) was divided into two groups, the ones who did not stay long enough to make any credits and the ones who made credits. There is a slight difference in the median entrance ages of these two groups. The ones that dropped without making any credits entered about two months older. In each group we find that the boys are about three and one-half months older when they entered than the girls. When both groups are combined the difference between boys and girls increases to four months.

Table X gives the comparison of the medians of the three groups. Here we see that the graduate group entered 8⅓ to 10 months youunger than the others. It seems to show that the older the pupil is when he enters the greater his chance for elimination. The non-graduate group which dropped before they made any grades had the highest medians. The difference between these groups is more pronounced with the boys than with the girls. Boys would possibly run a greater chance of being eliminated when they come in over age.

TABLE IX-A

RELATION OF ENTRANCE AGE AND ELIMINATION FOR THE GROUP OF 21 PUPILS WHO DROPPED BEFORE THEY MADE ANY GRADES.

Entrance Age	Number eliminated Boys	Girls	Total
12-0 to 12-11	0	0	0
13-0 to 13-5	0	1	1
13-6 to 13-11	0	1	1
14-0 to 14-5	1	1	2
14-6 to 14-11	0	1	1
15-0 to 15-5	2	4	6
15-6 to 15-11	3	2	5
16-0 to 16-5	2	2	4
16-6 to 16-11	0	0	0
17-0 to 17-5	0	0	0
17-6 to 17-11	0	1	1
18 and over	0	0	0
Total	8	13	21
Median Entrance Age	15-7.5	15-3.75	15-5.5
Q1	15-3	14-7.5	15- .25
Q3	16-0	15-8.25	15-11.7

TABLE IX-B

RELATION OF ENTRANCE AGE TO ELIMINATION OF THE GROUP THAT MADE CREDITS.

	Number eliminated.		
Entrance Age	Boys	Girls	Total
12-0 to 12-11	0	0	0
13-0 to 13-5	5	2	7
13-6 to 13-11	3	6	9
14-0 to 14-5	12	15	27
14-6 to 14-11	9	14	23
15-0 to 15-5	21	23	44
15-6 to 15-11	17	9	26
16-0 to 16-5	14	9	23
16-6 to 16-11	3	5	8
17-0 to 17-5	3	3	6
17-6 to 17-11	6	0	6
18 and over	4	2	6
Totals	97	88	185
Medians	15-5.6	15-2	15-.6
Q1	14-8.8	14-5.6	14-6.85
Q3	16-8.5	15-9	16-.75

TABLE IX-C

RELATION OF ENTRANCE AGE TO ELIMINATION

OF THE TOTAL (206) ELIMINATED.

Entrance Age	Number eliminated. Boys	Girls	Total
12-0 to 12-11	0	0	0
13-0 to 13-5	5	1	6
13-6 to 13-11	3	7	10
14-0 to 14-5	13	16	29
14-6 to 14-11	9	15	24
15-0 to 15-5	23	27	49
15-6 to 15-11	20	11	31
16-0 to 16-5	16	11	27
16-6 to 16-11	3	5	8
17-0 to 17-5	3	3	6
17-6 to 17-11	6	1	7
18 and over	4	2	6
Total	105	101	206
Median Entrance Age	15-6	15-2	15-4
Q1	14-3.5	14-6.5	14-7.6
Q3	16-2.16	15-10.25	16-.50

TABLE X.

COMPARISON OF THE ENTRANCE AGE MEDIANS OF THE GRADUATE GROUP AND THE NON-GRADUATE GROUPS.

	Median Entrance Ages		
Group	Boys	Girls	Total
Non-graduate (206)	15-6	15-2	15-4
Graduate (392)	14-8.5	14-6.5	14-7.5
Difference (months)	9.5	7.5	8.5
Non-graduate and non-credit (21)	15-7.5	15-3.75	15-5.5
Graduate (392)	14-8.5	14-6.5	14-7.5
Difference (months)	11	9.25	10
Non-graduate and non-credit (21)	15-7.5	15-3.75	15-5.5
Non-graduate but credit (185)	15-5.6	15-2	15-3.6
Difference (months)	1.9	1.75	1.9

In the study of the relation of entrance age to semester credits made by the group that was eliminated later, we find that tables XI-A, B, C give some interesting facts. These tables are arranged so that they show the average credits earned per pupil per semester for each entrance age group. Every table gives a divsion of the pupils into younger and older groups. The younger group is made up of those who enter before the median entrance age. It is interesting to notice that for both the boys and the girls the average number of credits earned is larger for the older group. Evidently these people came in late and hoped to gain a little time by taking a larger number of subjects. But for some reason or other they failed to stay with their good start.

In comparing the average number of credits earned by the boys with those earned by the girls we find that in every age group, except three, the girls exceeded the boys from one to fifteen credits for the age group. In the youngest and the two highest age groups the boys were ahead. The largest difference is found in the 16-6 to 16-11 age group where the girls have over 15 credit advantage. Evidently these girls came in late but were determined to get the work assigned by the teachers.

TABLE XI-A

RELATION OF ENTRANCE AGE

TO

SEMESTER CREDITS OF LOST BOYS.

Entrance Age	Number Entered	Number Credits	Average Credits
13-0 to 13-5	5	73	14.6
13-6 to 13-11	3	38	13.0
14-0 to 14-5	12	162	13.5
14-6 to 14-11	9	126	14.0
15-0 to 15-5	21	229	11.0
15-6 to 15-11	17	213	12.5
16-0 to 16-5	14	205	15.0
16-6 to 16-11	3	35	12.0
17-0 to 17-5	3	67	22.0
17-6 to 17-11	6	86	14.0
18 and over	4	56	14.0
Totals	97	1290	13.3

Median Entrance Age 15 years 5.6 months

Younger half made total of 609 credits 12.6

Older half made total of 681 credits 14.1

TABLE XI-B

RELATION OF ENTRANCE AGE TO

SEMESTER CREDITS OF ELIMINATED GIRLS.

Entrance Age	Number Entered	Number Credits	Average Credits
13-0 to 13-5	2	21	11.0
13-5 to 13-11	6	114	19.0
14-0 to 14-5	15	124	16.0
14-6 to 14-11	14	299	21.4
15-0 to 15-5	23	346	15.0
15-6 to 15-11	9	156	17.0
16-0 to 16-5	9	72	8.0
16-6 to 16-11	5	138	27.6
17-0 to 17-5	3	78	26.0
17-6 to 17-11	0	0	0
18 and over	2	26	13.0
Total	88	1374	15.6
Median Entrance Age		15-2	
Younger half made (above median)		673 credits	15.3 average
Older half made		700 credits	16.0 average

TABLE XI-C

RELATION OF ENTRANCE AGE AND SEMESTER CREDITS OF BOYS AND GIRLS ELIMINATED.

Entrance Age	Number Entered	Number of Credits	Average Credits
13-0 to 13-5	7	94	13.4
13-6 to 13-11	9	152	17.0
14-0 to 14-5	27	286	10.2
14-6 to 14-11	23	425	18.5
15-0 to 15-5	44	575	13.1
15-6 to 15-11	26	396	14.2
16-0 to 16-5	23	277	12.0
16-6 to 16-11	8	173	21.6
17-0 to 17-5	6	145	24.2
17-6 to 17-11	6	86	14.3
18 and over	6	82	13.7
Total	185	2664	14.4
Medians	15-5.6	15-2	15-3.6
Younger half of both boys and girls		1282 credits	13.86 average
Older half (above Median Entrance Age)		1381 credits	14.93 average

The next three tables (XII-A, B, C) show the relation between the entrance age and the number of semester failures for the eliminated group of students studied. Here again the number of failures is also averaged for each age group to make a comparison possible. In looking at the averages for the total group we find that the youngest age group and the three oldest had the highest average number of failures.

At the foot of each table is given the division into older and younger or above and below median entrance age. In the tables on semester credits we found that the older half had a larger number of average credits. We might have expected them then to have a smaller number of failures than the younger half. This is not the case; the older half also has a larger number of semester failures. They must have taken more subjects per person so that they could fail in more and still also pass in more per student.

In comparing the boys and the girls we find that boys seem to be more afflicted by the sin of failing than the girls. For every age group they have a larger average number of failures than the girls. Their average is four times that of the girls.

TABLE XII-A

ENTRANCE AGE IN RELATION TO SEMESTER FAILURES OF ELIMINATED BOYS.

Entrance Age	Number Entered	Number Failures	Average Failures
13-0 to 13-5	5	56	11.0
13-6 to 13-11	3	23	7.7
14-0 to 14-5	12	66	5.5
14-6 to 14-11	9	41	4.5
15-0 to 15-5	21	105	5.0
15-6 to 15-11	17	106	6.0
16-0 to 16-5	14	73	5.0
16-6 to 16-11	3	22	7.0
17-0 to 17-5	3	20	7.0
17-6 to 17-11	6	46	7.5
18 and over	4	32	8.0
Total	97	590	6.0
Median Entrance Age		15-5.6	
Younger half (below median entrance age)	total	291 failures	5.82 average
Older half	total	299 failures	6.36 average

TABLE XII-B

RELATION OF ENTRANCE AGE TO SEMESTER FAILURES OF ELIMINATED GIRLS.

Entrance Age	Number Entered	Number Failures	Average Failures
13-0 to 13-5	2	4	2.0
13-6 to 13-11	6	10	1.6
14-0 to 14-5	15	16	1.0
14-6 to 14-11	14	15	1.0
15-0 to 15-5	23	45	2.0
15-6 to 15-11	9	15	1.6
16-o to 16-5	9	15	1.6
16-6 to 16-11	5	9	1.8
17-0 to 17-5	3	11	3.7
17-6 to 17-11	0	0	0
18 and over	2	3	1.5
Totals	88	143	1.6

Median Entrance Age 15-2

Younger half (one who entered below Median Entrance Age) 60 failures 1.37 average

Older half 83 failures 1.9 average

TABLE XII-C

RELATION OF ENTRANCE AGE TO SEMESTER FAILURES OF BOTH BOYS AND GIRLS ELIMINATED.

Entrance Age	Number Entered	Number Failures	Average Failures
13-0 to 13-5	7	60	8.6
13-6 to 13-11	9	33	3.7
14-0 to 14-5	27	82	3.0
14-6 to 14-11	23	56	2.4
15-0 to 15-5	44	150	3.4
15-6 to 15-11	26	121	4.7
16-0 to 16-5	23	88	3.4
16-6 to 16-11	8	31	4.0
17-0 to 17-5	6	31	5.0
17-6 to 17-11	6	46	9.2
18 and over	6	36	6.0
Totals	185	733	3.96
Median Entrance Age		15-3.6	
Young half (below Median Entrance Age)		351 failures	3.70 average
Older half		382 failures	4.15 average

The next three tables give the relation between the entrance age and the semester when the non-graduate group left school. It is interesting to see that the second semester of each of the first three years, the number is larger than the first semester. Undoubtedly a number that are "near-failures" decide not to return the following year for fear that they might not make it. There is an exception to this in the senior year. Possibly students think that they are going to be able to get to graduate even though they have not been very strong in their earlier years and so they return for the senior work.

Nearly one-half (44%) of the non-graduate girls dropped out by the end of the first year, and none of the girls of this group returned for a fifth year's work. For the boys this is an entirely different, the percentage of elimination is about the same for each year of the four years and for the fifth year it is about half that for any one of the other years. This might indicate that in this school there is more that interests the boys and they are willing to come back and try it again; or else it might mean that the girls realize sooner than the boys that they are not going to graduate and quit.

TABLE XIII-A

COMPARISON OF ENTRANCE AGE AND SEMESTER WHEN NON-GRADUATE BOYS LEFT HIGH SCHOOL.

ENTRANCE AGE	SEMESTER WHEN ELIMINATED									
	1	2	3	4	5	6	7	8	9	Total
13-0 to 13-5				2	2				1	5
13-6 to 13-11					1		1		1	3
14-0 to 14-5	1	1	3	2	1	1	2		1	12
14-6 to 14-11		1	1	1	1	1	2	1	1	9
15-0 to 15-5	2	10		2		2	4	3	1	24
15-6 to 15-11	2	5	1	4	1	3	1	2	3	22
16-0 to 16-5	2	1		1	2	1	2	1	3	13
16-6 to 16-11			1		2	1	1			5
17-0 to 17-5		1					2	1		4
17-6 to 17-11				1			1		2	4
18 and over		1		2	1					4
TOTALS	7	20	6	15	11	9	16	8	13	105

	1st	2nd	3rd	4th	5th	Total
Total number lost by years	27	21	20	24	13	105
Percent lost by years	25	21	19	23	12	100

TABLE XIII-B

RELATION OF ENTRANCE AGE AND SEMESTER

WHEN NON- GRADUATE GIRLS LEAVE HIGH SCHOOL.

ENTRANCE AGE	SEMESTER WHEN ELIMINATED									
	1	2	3	4	5	6	7	8	9	Total
13-0 to 13-5	1				1					2
13-6 to 13-11	1	2	1			3				7
14-0 to 14-5	1	2	1	1	1	2	2	1		11
14-6 to 14-11	2	5		1	2	1	2	3		16
15-0 to 15-5	3	8	2	7	4	4		1		29
15-6 to 15-11	4	3		2		2	1	1		13
16-0 to 16-5	3	5	1	1	1	1				12
16-6 to 16-11		1		1		1	1	1		5
17-0 to 17-5		1			1		1			3
17-6 to 17-11	1									1
18 and over		1				1				2
TOTALS	16	28	5	13	10	15	7	7	0	101

	1st	2nd	3rd	4th	5th	Total
Total number lost by years	44	18	25	14	0	101
Percent lost by years	44	18	25	14	0	100

TABLE XIII-C

RELATION TO ENTRANCE AGE TO SEMESTER WHEN NON-GRADUATE BOYS AND GIRLS LEAVE HIGH SCHOOL.

ENTRANCE AGE	SEMESTER WHEN ELIMINATED									
	1	2	3	4	5	6	7	8	9	Total
13-0 to 13-5	1			2	3				1	7
13-5 to 13-11	1	2	1		1	3	1		1	10
14-0 to 14-5	2	3	4	3	2	3	4	1	1	23
14-6 to 14-11	2	6	1	2	3	2	4	4	1	25
15-0 to 15-5	5	18	2	9	4	6	4	4	1	53
15-5 to 15-11	6	8	1	6	1	5	2	3	3	35
16-0 to 16-5	5	6	1	2	3	2	2	1	3	25
16-6 to 16-11		1	1	1	2	2	2	1		10
17-0 to 17-5		2			1		3	1		7
17-6 to 17-11	1			1			1		2	5
18 and over		2		2	1	1				6
TOTALS	23	48	11	28	21	24	23	15	13	206

	1st	2nd	3rd	4th	5th	Total
Total number lost by years	71	39	45	38	13	206
Percent lost by years	35	19	22	18	6	100

Tables XIV-A, B, C give the relation between the entrance age and the number of semesters that the non-graduate group stayed in school. Eight of the 105 boys and 13 of the 101 girls did not even stay one semester. This means that about 10% of those who drop out are gone before the end of the first semester. Better than 37% are gone before the beginning of the second year and more than one-half (55%) leave by the end of the second year. Less than 10% of the non-graduate girls and one-third of the boys stay to begin their fourth year's work.

This again brings out the fact that the process of elimination is working faster among the girls. They are eliminated earlier and the school has not had an opportunity to give them as much schooling as to the boys. Stating it in another way, the school must have offered the boys more that appealed to them so they responded by staying longer thus reducing the amount of elimination especially during the earlier years of their high school work. This would also indicate that the problem of elimination for the boys has been in part solved. The elimination for them in the Augusta High School being less than that for other schools as per chapter two.

TABLE XIV-A

RELATION OF ENTRANCE AGE TO NUMBER OF SEMESTERS NON-GRADUATE BOYS STAYED IN HIGH SCHOOL.

ENTRANCE AGE	SEMESTERS IN SCHOOL										
	0	1	2	3	4	5	6	7	8	9	Totals
13-0 to 13-5				1	1	2				1	5
13-6 to 13-11					1			1		1	3
14-0 to 14-5	1		1	3	1	1	1	2	1	1	12
14-6 to 14-11			2	1		2	1	1	1	1	9
15-0 to 15-5	2	5	5	1	1	2	1	4	2	1	24
15-6 to 15-11	3	3	3	2	1	2	2	1	2	3	22
16-0 to 16-5	2		1		1	3	1	1	2	2	13
16-6 to 16-11				1	1	2		1			5
17-0 to 17-5			1					2	1		4
17-6 to 17-11					1			1		2	4
18 and over			1		3						4
TOTALS	8	8	14	9	11	14	6	14	9	12	105

	1st	2nd	3rd	4th	5th	Totals
Total number by years	30	20	20	23	12	105
Percent by years	29	19	19	22	11	100

TABLE XIV-B

RELATION OF ENTRANCE AGE TO NUMBER OF SEMESTERS NON-GRADUATE GIRLS STAYED IN HIGH SCHOOL.

ENTRANCE AGE	Number of Semesters In										
	0	1	2	3	4	5	6	7	8	9	Totals
13 to 13-5	1					1					2
13-6 to 11	1	2	1				3				7
14 to 14-5	1		2	2		1	2	2	1		11
14-6 to 11	1	3	3		3	1	2	3			16
15 to 15-5	2	3	8	3	5	3	4		1		29
15-6 to 11	4	1	2	2			3		1		13
16 to 16-5	2	5	1	2		2					12
16-6 to 11			1		1		1	2			5
17 to 17-5			1			2					3
17-6 to 11	1										1
18 and over			1				1				2
TOTALS	13	14	20	9	9	10	16	7	3	0	101

	1st	2nd	3rd	4th	5th	Totals
Total number by years	47	18	26	10	0	101
Percent by years	46.5	17.8	25.7	10	0	100

TABLE XIV-C

RELATION OF ENTRANCE AGE TO NUMBER OF SEMESTERS NON-GRADUATE BOYS AND GIRLS STAYED IN HIGH SCHOOL.

ENTRANCE AGE	SEMESTERS IN HIGH SCHOOL										
	0	1	2	3	4	5	6	7	8	9	Totals
13 to 13-5	1			1	1	3				1	7
13-6 to 11	1	2	1		1		3	1		1	10
14 to 14-5	2		3	5	1	2	3	4	2	1	23
14-6 to 11	1	3	5	1	3	3	3	4	1	1	25
15 to 15-5	4	8	13	4	6	5	5	4	3	1	53
15-6 to 11	7	4	5	4	1	2	5	1	3	3	35
16 to 16-5	4	5	2	2	1	5	1	1	2	2	25
16-6 to 11			1	1	2	2	1	3			10
17 to 17-5			2			2		2	1		7
17-6 to 11	1				1			1		2	5
18 and over			2		3		1				6
TOTALS	21	22	34	18	20	24	22	21	12	12	206

	1st	2nd	3rd	4th	5th	Totals
Total number by years	77	38	46	33	12	206
Percent by years	37.4	18.5	22.3	16	5.8	100

The next three tables give the comparison of the entrance age and the age of elimination for the non-graduate group. The age of elimination is given in years only; column 13 means from 13-0 to 13-11 or from the thirteenth birthday until the fourteenth birthday. Table XV-A shows that 41 boys or 40% of the total number eliminated were lost by the end of their sixteenth year or seventeenth birthday. From table XV-B we see that 58 or 57⅓% of the girls eliminated were lost by this time. This again brings out the fact that elimination for girls is much more rapid in the earlier years than for the boys.

TABLE XV-A

COMPARISON OF ENTRANCE AGE AND ELIMINATION AGE OF THE NON-GRADUATE BOYS.

ENTRANCE AGE	AGE WHEN ELIMINATED									
	13	14	15	16	17	18	19	20	21	Total
13-0 to 13-5			4		1					5
13-6 to 13-11			1		1	1				3
14-0 to 14-5			5	3	2		2			12
14-6 to 14-11			2	1	2	3	1			9
15-0 to 15-5			5	8	2	5	2	2		24
15-6 to 15-11			3	6	4	3	3	2	1	22
16-0 to 16-5				3		4	4	1	1	13
16-6 to 16-11					1	2	1	1		5
17-0 to 17-5					1			3		4
17-6 to 17-11					1	1			2	4
18 and over							2	1	1	4
Total	0	0	20	21	15	19	15	10	5	105

TABLE XV-B

COMPARISON OF ENTRANCE AGE AND ELIMINATION AGE OF THE NON-GRADUATE GIRLS.

ENTRANCE AGE	AGE WHEN ELIMINATED									
	13	14	15	16	17	18	19	20	21	Total
13-0 to 13-5	1			1						2
13-6 to 13-11	1	3		2		1				7
14-0 to 14-5		1	2	5	3					11
14-6 to 14-11		2	5	1	4	4				16
15-0 to 15-5			9	9	7	3	1			29
15-6 to 15-11			4	4	1	2	2			13
16-0 to 16-5				8		4				12
16-6 to 16-11					2	1		2		5
17-0 to 17-5						1	1	1		3
17-6 to 17-11						1				1
18 and over						1			1	2
Total	2	6	20	30	17	18	4	3	1	101

TABLE XV-C

COMPARISON OF ENTRANCE AGE AND ELIMINATION AGE OF THE NON-GRADUATE BOYS AND GIRLS.

ENTRANCE AGE	AGE WHEN ELIMINATED									
	13	14	15	16	17	18	19	20	21	Total
13-0 to 13-5	1		4	1	1					7
13-6 to 13-11	1	3	1	2	1	2				10
14-0 to 14-5		1	7	8	5		2			23
14-6 to 14-11		2	7	2	6	7	1			25
15-0 to 15-5			14	17	9	8	3	2		53
15-6 to 15-11			7	10	5	5	5	2	1	35
16-0 to 16-5				11		8	4	1	1	25
16-6 to 16-11					3	3	1	3		10
17-0 to 17-5					1	1	1	4		7
17-6 to 17-11					1	2			2	5
18 and over						1	2	1	2	6
Total	2	6	40	51	32	37	19	13	6	206

Tables XVI-A, B, C give the comparison for each entrance age group of the number graduated and the number lost. This comparison is worked out in percentage; the percentage of loss being figured on the number of cases studied for each entrance age group. It is interesting to note that beginning with the entrance age group of 15-0 to 15-5 and older the percentage of elimination almost doubles. This brings out the fact very clearly that the older a student is when he enters the high school the greater is the probability of his being eliminated before he finishes his high school work.

TABLE XVI-A

COMPARISON OF THE NUMBER GRADUATED AND LOST FOR EACH ENTRANCE AGE GROUP FOR THE BOYS.

Entrance Age	Number Cases	Number Graduated	Number Lost	Percent Lost
13-0 to 13-5	15	10	5	33
13-6 to 13-11	22	19	3	14
14-0 to 14-5	49	37	12	24
14-6 to 14-11	34	25	9	27
15-0 to 15-5	51	27	24	47
15-6 to 15-11	29	7	22	76
16-0 to 16-5	29	16	13	45
16-6 to 16-11	10	5	5	50
17-0 to 17-5	7	3	4	57
17-6 to 17-11	4	0	4	100
18 and over	8	4	4	50
Total	258	153	105	

TABLE XVI-B

COMPARISON OF THE NUMBER GRADUATED AND LOST FOR EACH ENTRANCE AGE GROUP FOR THE GIRLS.

Entrance Age	Number Cases	Number Graduated	Number Lost	Percent Lost
13-0 to 13-5	27	25	2	7
13-6 to 13-11	50	43	7	14
14-0 to 14-5	59	48	11	19
14-6 to 14-11	57	41	16	28
15-0 to 15-5	67	38	29	43
15-6 to 15-11	30	17	13	43
16-0 to 16-5	23	11	12	52
16-6 to 16-11	13	8	5	40
17-0 to 17-5	9	6	3	33
17-6 to 17-11	1	0	1	100
18 and over	4	2	2	50
Total	340	239	101	

TABLE XVI-C

COMPARISON OF THE NUMBER GRADUATED AND LOST FOR EACH ENTRANCE AGE GROUP FOR BOYS AND GIRLS.

Entrance Age	Number Cases	Number Graduated	Number Lost	Percent Lost
13-0 to 13-5	42	35	7	17
13-6 to 13-11	72	62	10	14
14-0 to 14-5	108	85	23	21
14-6 to 14-11	91	66	25	27
15-0 to 15-5	118	65	53	45
15-6 to 15-11	59	24	35	60
16-0 to 16-5	52	27	25	48
16-6 to 16-11	23	13	10	43
17-0 to 17-5	16	9	7	44
17-6 to 17-11	5	0	5	100
18 and over	12	6	6	50
Total	598	392	206	

CHAPTER VI.

SUMMARY AND CONCLUSIONS.

The 598 Augusta High School pupils studied were divided into high and low I. Q. groups on an I. Q. basis of 100. The study brought out the fact that the distribution in these two groups was very nearly even. Of all the boys, 55% were in the low group, and of all the girls, 51% were in the high group. In the total number (598), 290 or 48⅓% were in the high group and 308 or 51½% in the low group. This is better than Margaret Alltucker[1] found in her study of 1400 entering pupils in Berkley, California.

If I. Q. would not be a factor in the elimination from high school then the number eliminated from the high and low groups should be about even. Terman, Feingold, Eaton, and others found that the elimination was larger in the group having the low I. Q. than in the group with the high I. Q. as related in Chapter II of this study. In the Augusta High School three-fourths of the elimination is found in the low group and one-fourth in the high group.

1. Alltucker, Margaret M., "What Can the Secondary School Do For the Student With a Low I. Q.?" School Review 31:653-61, November, 1923.

The part of the study giving the relation between the number enrolled and the number who graduated is encouraging. It shows that the percentage of graduates based on the enrollment has constantly increased during the twelve year period from 1917-18 to 1928-29. This would indicate that this high school is now able to hold more of its students for the four years and get them to complete their work than formerly.

Early entrance in Augusta High School is conducive to graduation. The median entrance age was from 8½ to 10 months lower for the graduate group than for the non-graduate group. This agrees with what VanDenburgh, Terman, Obrien, Ellis, and others found. Boys enter older than girls and drop out in larger numbers. Either the work is more suited to the younger pupils or the older ones feel themselves out of place with their younger brothers and sisters, or family needs require the assistance of older brothers and sisters.

In studying the relation of the entrance age to elimination it was found that the Augusta High School was able to hold its pupils longer than those high schools studied by VanDenburgh, Feingold, King, and others as related in Chapter II. Those studies showed that from 57% to 82% of the elimination had taken place

by the end of the second year. In the Augusta High School only a little more than half (55%) of the elimination had taken place by the end of the second year.

The boys dropped out in about the same number for each of the four years. Of the non-graduate group of boys one-third entered the fourth year of high school work. About one-half that number returned for the fifth year. The girls left faster in the earlier part of their high school career. Nearly one-half of the non-graduate girls dropped out by the end of the first year. Less than 10% of the non-graduate group of girls returned for their fourth year's work and none returned for the fifth year. After the age of 15⅓ years, elimination for both boys and girls is very much faster. By their 17th birthday 57½% of the non-graduate girls are eliminated while only 40% of the non-graduate boys were gone by this age.

The boys fall behind the girls in nearly every age-group in the number of semester credits earned. The older girls seem especially able to do more credit bringing work than the older boys. On the other hand the boys have from two to seven times as many failures for every age-group as compared to the girls. Boys do

not make as many credits per pupil as the girls but they expose themselves for a longer time to the influences of the school.

This study brings out the fact that there is a relation between I.Q. and elimination. The low I.Q. group furnished three times as many eliminated pupils as the high group. In order to reduce the amount of elimination it becomes necessary to study and meet the needs of the low I.Q. group. The Augusta High School seems to have been able to do this, at least in part, since the amount of elimination for the whole school and especially that for the boys is on the decrease.

Failure tends to bring discouragement with it and this causes a number of students to quit school. Reducing the number of failures would help to keep pupils in school. By proper sectioning of classes,[1] selection of vital and interesting subject matter,[2] and efficient method of presentation,[3] the number of failures can be materially reduced.

1. Terman, Lewis M., "Intelligence of School Children". p. 303, Houghton Mifflin Company, 1919.

2. Alltucker, Margaret M., "What Can the Secondary School Do For Students With a Low I.Q.?" School Review 31:653, November, 1923.

3. Obrien, F. P., "High School Failure". Contribution to Education No. 102, Teachers' College, Columbia, 1919.

Normal rate of progress through the grades would help to reduce the amount of elimination. By normal progress a child would enter the high school at an earlier age, and since early entrance is conducive to graduation, elimination would be reduced. Proper guidance for and sympathy with those who enter late would undoubtedly encourage them to stay in school and graduate.

This high school seems to be able to get the boys and to hold them for a longer period than the girls. This may be due to changes and additions to the course of study since 1922. Possibly changes and additions in the course of study for the girls might make it more attractive for them so that they too would not drop out so early and rapidly.

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APPENDIX

The following is a sample of the arrangement of information from the Terman Test for the different classes. The students names were arranged in alphabetical order. For each student is listed the year the Terman Test was given, his chronological age to his nearest birthday at the time of the test, the score made on the test, the mental age derived from the score, and the I.Q. figured on the basis of mental and chronological ages. These tests were given in September 1921, December 1922, and November 1923.

BOYS OF CLASS OF 1924

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
A. D.				
1921-1922	15 - 7	187	18 - 6	118
1922-1923	16 - 10	188	18 - 6	115
1923-1924	17 - 9	193	18 - 8	116
B. L.				
1921-1922	14 - 7	95	14 - 1	97
1922-1923	15 - 10	127	15 - 7	98
1923-1924	16 - 9	154	16 - 11	106
B. E.				
1921-1922	16 - 10	115	15 - 1	94
1922-1923	18	130	15 - 9	98
1923-1924	19	150	16 - 8	104
B. L.				
1921-1922	15 - 3	108	14 - 9	97
1922-1923	16 - 6	117	15 - 2	95
1923-1924	17 - 6	127	15 - 7	97

BOYS OF CLASS OF 1924 (CONT.)

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
B. O.				
1921-1922	14 - 10	131	15 - 10	107
1922-1923	16 - 1	143	16 - 4	102
1923-1924	17 - 1	180	18 - 1	112
C. C.				
1923-1924	17 - 5	125	15 - 6	97
C. M.				
1923-1924	18 - 7	163	17 - 3	108
C. R.				
1921-1922	17 - 6	92	14	88
1922-1923	18 - 9	89	13 - 11	87
1923-1924	19 - 9	116	15 - 1	94
C. L.				
1921-1922	17 - 5	119	15 - 3	95
1922-1923	18 - 8	163	17 - 3	108
F. J.				
1923-1924	18 - 2	125	15 - 6	97
G. C.				
1921-1922	16 - 4	94	14	88
1922-1923	17 - 7	112	14 - 11	93
1923-1924	18 - 6	148	16 - 7	104
G. S.				
1922-1923	19 - 4	116	15 - 2	95
1922-1923	20 - 7	134	16	100
1923-1924	21 - 7	143	16 - 4	102
H. P.				
1921-1922	15 - 4	85	13 - 8	89
1922-1923	16 - 7	116	15 - 1	94
1923-1924	17 - 4	118	15 - 2	95
H. J.				
1922-1923	20 - 7	92	14	88
M. T.				
1922-1923	18	129	15 - 9	98

BOYS OF CLASS OF 1924 (CONT.)

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
M. F.				
1921-1922	18 - 3	99	14 - 4	90
1922-1923	19 - 6	131	15 - 9	98
1923-1924	20 - 5	123	15 - 5	96
M.C.				
1921-1922	17 - 7	84	13 - 8	85
1922-1923	18	103	14 - 6	91
1923-1924	19 - 10	130	15 - 9	98
P. R.				
1923-1924	16 - 3	146	16 - 5	102
R. J.				
1921-1922	16 - 4	106	14 - 7	91
1922-1923	17 - 7	148	16 - 7	104
1923-1924	18 - 7	145	16 - 5	102
S. F.				
1921-1922	15 - 5	90	13 - 11	90
1922-1923	16 - 8	124	15 - 6	97
1923-1924	17 - 7	142	16 - 4	102
T. M.				
1921-1922	14 - 8	192	18 - 8	127
1922-1923	15 - 11	196	18 - 9	117
1923-1924	15 - 10	210	19 - 6	122
W. W.				
1921-1922	15 - 10	151	16 - 8	105
1922-1923	16 - 5	138	16 - 2	101
1923-1924	17 - 5	141	16 - 3	102

GIRLS OF CLASS OF 1924

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
B. Z.				
1923-1924	17 - 7	146	16 - 5	102
B. A.				
1921-1922	15 - 9	156	16 - 11	108
1922-1923	16 - 11	175	17 - 10	111
1923-1924	17 - 11	180	18 - 1	112
B. K.				
1923-1924	20 - 6	149	16 - 8	104
C. F.				
1921-1922	15 - 5	113	15	97
1922-1923	16 - 7	99	14 - 4	90
C. D.				
1921-1922	15 - 2	118	15 - 2	100
1922-1923	16 - 5	141	16 - 3	102
C. P.				
1922-1923	17 - 1	125	15 - 6	97
1923-1924	18 - 0	149	16 - 8	104
C. N.				
1921-1922	15 - 3	116	15 - 1	99
1922-1923	16 - 6	137	16 - 1	101
1923-1924	17 - 6	149	16 - 8	104
C. V.				
1921-1922	14 - 5	88	13 - 10	96
1922-1923	15 - 9	120	15 - 3	97
1923-1924	16 - 8	130	16 - 3	102
D. V.				
1921-1922	15 - 3	156	16 - 11	111
1922-1923	16 - 6	156	16 - 11	106
1923-1924	17 - 5	183	18 - 3	113
D. H.				
1921-1922	16 - 6	62	12 - 7	79
1922-1923	17 - 9	110	14 - 10	93
1923-1924	18 - 9	106	14 - 7	91

GIRLS OF CLASS OF 1924 (CONT.)

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
E. H.				
1921-1922	15 - 4	132	15 - 10	103
1922-1923	16 - 6	148	16 - 7	104
1923-1924	17 - 6	163	17 - 4	108
F. G.				
1921-1922	14 - 3	71	12 - 11	91
1922-1923	15 - 6	84	13 - 8	88
1923-1924	16 - 5	115	15 - 1	94
V. F.				
1921-1922	14 - 6	100	14 - 4	99
1922-1923	15 - 9	122	15 - 5	98
1923-1924	16 - 8	143	16 - 4	102
F. V.				
1921-1922	14 - 6	102	14 - 5	99
1922-1923	15 - 9	111	14 - 10	95
1923-1924	16 - 8	150	16 - 8	104
F. M.				
1921-1922	15 - 6	140	16 - 3	105
1922-1923	16 - 10	162	17 - 3	108
1923-1924	17 - 9	160	17 - 2	107
H. L.				
1921-1922	16 - 9	113	15	94
1922-1923	17 - 11	109	14 - 10	93
1923-1924	18 - 11	128	15 - 8	98
H. M.				
1921-1922	15 - 7	87	13 - 9	88
1922-1923	16 - 10	145	16 - 5	102
1923-1924	17 - 10	159	17 - 2	107
H. W.				
1923-1924	18 - 5	145	16 - 5	102
H. H.				
1921-1922	12 - 9	159	17 - 2	135
1922-1923	14 - 0	166	17 - 5	124
1923-1924	15 - 0	186	18 - 4	122

GIRLS OF CLASS OF 1924 (CONT.)

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
K. L.				
1921-1922	15 - 11	103	14 - 6	91
1922-1923	17 - 2	126	15 - 6	97
1923-1924	18 - 2	136	16 - 0	100
K. T.				
1921-1922	14 - 11	95	14 - 1	94
1922-1923	16 - 2	132	15 - 10	99
1923-1924	17 - 2	133	15 - 11	99
M. V.				
1921-1922	16 - 5	58	12 - 5	78
1922-1923	17 - 8	47	11 - 10	74
L. H.				
1922-1923	17 - 5	109	14 - 9	92
1923-1924	18 - 5	132	15 - 10	99
M. T.				
1921-1922	16 - 2	113	14 - 11	93
1922-1923	17 - 5	126	15 - 6	97
1923-1924	18 - 5	152	16 - 9	104
M. L.				
1921-1922	16 - 0	112	14 - 11	93
1922-1923	17 - 4	160	17 - 2	107
1923-1924	18 - 3	158	17 - 1	106
M. M.				
1921-1922	16 - 6	103	14 - 5	90
1922-1923	17 - 9	118	15 - 2	95
1923-1924	18 - 9	143	16 - 4	102
N. L.				
1921-1922	16 - 5	165	17 - 5	108
1922-1923	17 - 8	159	17 - 2	107
1923-1924	18 - 8	170	17 - 7	108
O. M.				
1921-1922	15 - 4	123	15 - 4	100
R. I.				
1921-1922	14 - 7	85	13 - 8	94
1922-1923	15 - 10	108	14 - 8	93
1923-1924	16 - 10	115	15 - 1	94

GIRLS OF CLASS OF 1924 (CONT.)

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
R. D.				
1921-1922	15 - 4	128	15 - 8	102
1922-1923	16 - 7	128	15 - 8	98
1923-1924	17 - 7	154	16 - 11	106
R. A.				
1921-1922	14 - 1	113	14 - 11	107
1922-1923	15 - 4	118	15 - 2	99
1923-1924	16 - 3	126	16 - 6	97
S. V.				
1921-1922	15 - 1	69	12 - 10	85
1922-1923	16 - 4	115	15 - 1	94
S. G.				
1921-1922	14 - 7	85	13 - 8	94
1922-1923	15 - 10	130	15 - 9	100
1923-1924	16 - 9	146	16 - 5	102
S. L.				
1921-1922	15	178	18	119
1922-1923	16 - 3	184	18 - 4	114
1923-1924	17 - 3	192	18 - 8	116
W. G.				
1921-1922	15 - 1	99	14 - 4	94
1922-1923	16 - 4	133	15 - 11	100
1923-1924	17 - 4	157	17 - 1	106
W. N.				
1922-1923	16 - 7	142	16 - 4	102
W. R.				
1922-1923	17 - 5	145	16 - 5	102
W. L.				
1922-1923	16 - 7	159	17 - 2	107

Sample of Test Given.

TERMAN GROUP TEST OF MENTAL ABILITY

For Grades 7 to 12

Prepared by Lewis M. Terman, Stanford University, California

EXAMINATION: FORM B

1. Name ..... (First name / Last name)
2. Boy or girl.....Grade.....High or Low.....
3. Age last birthday.....Date of birthday..... (Month / Day / Year)
4. Name of city (or county).....
5. Name of school.....
6. Name of teacher.....
7. Date of this examination.....19..... (Month / Day / Year)

Do not turn the page until you are told to.

Test	Score	Remarks or Further Data
1. Information		
2. Best Answer		
3. Word Meaning		
4. Logical Selection		
5. Arithmetic		
6. Sentence Meaning		
7. Analogies		
8. Mixed Sentences		
9. Classification		
10. Number Series		
Total		

TEST 1. INFORMATION

Draw a line under the ONE word that makes the sentence true, as shown in the sample.

SAMPLE. Our first President was
Adams Jefferson Lincoln Washington

1 The most gold is produced in
Alaska Tennessee Texas New York 1

2 A peck is a fourth of a
barrel bushel gallon keg 2

3 The Yale is a kind of
screw lock hammer wrench 3

4 Chalk is a kind of
flour limestone slate marble 4

5 Among birds that migrate are
eagles hawks owls robins 5

6 Sonata is a term used in
drawing football mathematics music 6

7 Socrates was a
politician philosopher scientist general 7

8 "Treasure Island" tells about
Micawber Uncas Long John Mowgli 8

9 The Pharaohs were kings of
Babylon Egypt Jerusalem Rome 9

10 Long-distance running most often injures the
heart legs stomach nerves 10

11 The dynamo produces
dynamite electricity powder gas 11

12 Polo is a kind of
disease firearm game work 12

13 A barometer measures
air-pressure distance electricity time 13

14 Asbestos comes from
bones cotton mines wool 14

15 An eight-sided figure is called a
trapezium scholium parallelogram octagon .. 15

16 Tweed is a kind of
cloth drink instrument weed 16

17 The turquoise is usually
blue brown red yellow 17

18 The bat is most closely related to the
butterfly mouse owl swallow 18

19 Perjury is a term used in
pedagogy law theology medicine 19

20 "Robinson Crusoe" was written by
Stevenson Hawthorne Defoe Cooper 20

Right .....

TEST 2. BEST ANSWER

Read each question or statement and make a cross before the BEST answer, as shown in the sample.

SAMPLE

Why do we buy clocks? Because
1 We like to hear them strike.
2 They have hands.
× 3 They tell us the time.

1 We should "think twice before we speak," because
1 We may think of more things to say.
2 We are then more sure to say the right thing.
3 If we speak too quickly, we may stammer.

2 The saying, "Idle brains are the devil's workhouse," means
1 The devil works with his brains.
2 People should not work for the devil.
3 People who are idle get into trouble.

3 The saying, "It's an ill wind that blows nobody good," means that
1 People often profit from the misfortunes of others.
2 Winds do great damage.
3 Winds never do any good.

4 The saying, "Destroy the lion while it is young," means
1 It is wicked to kill lions when they are old.
2 Young lions are most dangerous.
3 Weed out bad habits before they are too firmly established.

5 The saying, "The proof of a pudding is in the eating," means
1 Puddings are made to be eaten.
2 Puddings should be tested before they are served.
3 We can only tell what a thing is like by trying it.

6 Why are electrical engineers highly paid? Because
1 Their ability is much in demand.
2 They have a college education.
3 They work long hours.

7 Freezing water bursts pipes because
1 Cold makes the pipes weaker.
2 Water expands when it freezes.
3 The ice stops the flow of water.

8 Why should we have Congressmen? Because
1 The people are too many to meet and make their laws.
2 The people must be ruled.
3 Congressmen are usually honest.

9 The cause of echoes is
1 The reflection of sound waves.
2 The presence of electricity in the air.
3 The presence of moisture in the air.

10 If a man had a million dollars he ought to
1 Pay off the national debt.
2 Contribute to various worthy charities.
3 Give it all to some poor man.

11 The saying, "A bad workman quarrels with his tools," means
1 A bad workman is usually quarrelsome.
2 If the workman loses his temper, he is likely to break his tools.
3 A bad workman often excuses himself by blaming his tools.

Right..... × 2 = *Score*.....

TEST 3. WORD MEANING

When two words mean the SAME, draw a line under "SAME."
When they mean the OPPOSITE, draw a line under "OPPOSITE."

SAMPLES	fall — drop	same — opposite	
	north — south	same — opposite	
1	alert — sluggish	same — opposite	1
2	active — passive	same — opposite	2
3	procure — obtain	same — opposite	3
4	minimum — maximum	same — opposite	4
5	kindle — quench	same — opposite	5
6	hazardous — dangerous	same — opposite	6
7	exit — entrance	same — opposite	7
8	chasm — abyss	same — opposite	8
9	agile — nimble	same — opposite	9
10	remote — near	same — opposite	10
11	expand — contract	same — opposite	11
12	abhor — detest	same — opposite	12
13	competent — qualified	same — opposite	13
14	entice — allure	same — opposite	14
15	concave — convex	same — opposite	15
16	gravity — levity	same — opposite	16
17	sacred — hallowed	same — opposite	17
18	con — pro	same — opposite	18
19	adversary — opponent	same — opposite	19
20	optional — compulsory	same — opposite	20
21	defile — purify	same — opposite	21
22	senile — aged	same — opposite	22
23	illustrious — exalted	same — opposite	23
24	profuse — scanty	same — opposite	24
25	inert — energetic	same — opposite	25
26	heinous — atrocious	same — opposite	26
27	caprice — whim	same — opposite	27
28	apathy — indifference	same — opposite	28
29	acid — alkaline	same — opposite	29
30	indict — arraign	same — opposite	30

Right.....*Wrong*.....*Score*.....

TEST 4. LOGICAL SELECTION

In each sentence draw a line under the TWO words that tell what the thing ALWAYS has. Underline TWO, and ONLY TWO, in each line.

AMPLE. A man always has
body cap gloves mouth money

1 A snake always has
poison rattle stripes tail tongue 1
2 A bicycle always has
brakes frame rubber pump wheels 2
3 A box always has
depth hinge lid sides wood 3
4 Food always has
nutriment salt starch sweetness taste 4
5 A soldier always has
bayonet commander duty flag tent 5

6 An automobile always has
battery motor top wheels wind-shield 6
7 A policeman always has
authority cap club duty uniform 7
8 A newspaper always has
advertisements cartoons editor news pictures 8
9 An official always has
badge duties rights salary uniform 9
0 A nation always has
army inhabitants laws navy rivers 10

1 A debtor always has
creditor freedom honesty obligation property 11
2 Night always has
darkness hours moon stars stillness 12
3 A wheel always has
center circumference spokes tire wood 13
4 Anxiety always involves
awe dread grief insomnia uneasiness 14
5 Admiration always involves
esteem flattery humility love respect 15

6 A store always has
bookkeeper cash-box clerks keeper supplies 16
7 An invention always has
inventor machinery newness patent value 17
8 A gentleman is always
considerate educated honest wise witty 18
9 A duet always has
accompaniment instruments performers music voices .. 19
0 Antipathy always involves
antagonism disgust dislike fear jealousy 20

Right.....

TEST 5. ARITHMETIC

Find the answers as quickly as you can.
Write the answers on the dotted lines.
Use the bottom of the page to figure on.

1 Frank has 12 marbles. He bought 3 more, and then lost 6. How many had he left? *Answer*.....

2 What number multiplied by 16 equals 24×2? *Answer*.....

3 A man bought some sheep for $150. He sold them for $200, gaining $5 per head. How many did he buy? *Answer*.....

4 John earns $2.50 per day, James $3.75 per day. How much more does James earn than John in forty days? *Answer*.....

5 How many quarts of water will a can $6 \times 10 \times 12$ inches hold if a quart is 60 cubic inches? *Answer*.....

6 A boy had $\frac{3}{8}$ of a bushel of nuts and sold half of them. What fraction of a bushel had he left? *Answer*.....

7 A man bought a horse for $160 and sold it for $200. What per cent did he gain? *Answer*.....

8 If $2\frac{1}{2}$ dozen eggs cost $2, what is the price per dozen? *Answer*.....

9 Half of what number equals $\frac{1}{3}$ of 21? *Answer*.....

10 A borrows $500 at $7\frac{1}{4}$ per cent, and B borrows $500 at $6\frac{1}{4}$ per cent. How much more interest does A pay in a year than B? *Answer*.....

11 $\frac{3}{4}$ of a bushel of nuts is divided equally among five people. What fraction of a bushel does each get? *Answer*.....

12 If $4\frac{1}{2}$ tons of hay cost $36, what will $2\frac{1}{2}$ tons cost? *Answer*.....

Right..... $\times 2 =$ *Score*.....

TEST 6. SENTENCE MEANING

Draw a line under the right answer, as shown in the samples.

SAMPLES	Is coal obtained from mines?	Yes	No	
	Are all men six feet tall?	Yes	No	
1	Are cartoons made by cameras?	Yes	No	1
2	Are transparent substances used in windows?	Yes	No	2
3	Do hoboes ever wear dilapidated garments?	Yes	No	3
4	Is burlap a kind of lumber?	Yes	No	4
5	Do hermits usually live in seclusion?	Yes	No	5
6	Can time be measured with a barometer?	Yes	No	6
7	Are invalids usually elated?	Yes	No	7
8	Is a hypocrite usually insincere?	Yes	No	8
9	Do all birds have instincts?	Yes	No	9
10	Are conspicuous objects readily seen?	Yes	No	10
11	Does a quotient result from multiplication?	Yes	No	11
12	Do lagoons migrate periodically?	Yes	No	12
13	Do novelists ever prefer realism?	Yes	No	13
14	Is astigmatism a form of religion?	Yes	No	14
15	Does an anæsthetic allay pain?	Yes	No	15
16	Are prostrate forms often vertical?	Yes	No	16
17	Are divergent aims usually harmonious?	Yes	No	17
18	Do sovereigns owe allegiance to their subjects?	Yes	No	18
19	Are discreet persons usually trustworthy?	Yes	No	19
20	Have enfranchised people the right to vote?	Yes	No	20
21	Do retrograde movements lead to progress?	Yes	No	21
22	Is a parasite a living organism?	Yes	No	22
23	Does synthesis mean putting together?	Yes	No	23
24	Should deleterious habits be emulated?	Yes	No	24

Right.....*Wrong*.....*Score*.....

TEST 7. ANALOGIES

SAMPLES

Ear is to hear as eye is to
table see hand play

Hat is to head as shoe is to
arm coat foot leg

Do them all like samples.

---

1 Picture is to see as sound is to
noise music hear bark 1

2 Uncle is to nephew as aunt is to
brother sister niece cousin 2

3 Add is to subtract as multiply is to
add divide arithmetic increase 3

4 Shell is to nut as skin is to
person soft white coarse 4

5 Tree is to forest as person is to
couple men women crowd 5

6 Stone is to marble as wood is to
tall cut oak pile 6

7 10 is to 100 as 12 is to
16 24 144 288 7

8 Abide is to depart as stay is to
over home play leave 8

9 Food is to man as fuel is to
engine burn coal wood 9

10 Author is to book as artist is to
painter brush picture easel 10

11 Complex is to simple as hard is to
brittle money easy work 11

12 Imitate is to copy as invent is to
originate study Edison machine 12

13 Bad is to worse as worse is to
worst better best good 13

14 Wolf is to sheep as cat is to
fur kitten dog mouse 14

15 Past is to present as yesterday is to
today tomorrow Christmas gone 15

16 Go is to went as rise is to
fall rose rising fell 16

17 Square is to cube as circle is to
line round square sphere 17

18 Policeman is to officer as dictionary is to
words book large school 18

19 $\frac{4}{3}$ is to $\frac{1}{3}$ as 8 is to
10 6 4 2 19

20 Seldom is to never as little is to
small none large often 20

Right .....

TEST 8. MIXED SENTENCES

The words in each sentence below are mixed up. If what a sentence means is TRUE, draw a line under "TRUE." If what it means is FALSE, draw a line under "FALSE."

SAMPLES	hear are with to ears	true	false	
	eat gunpowder to good is	true	false	
1	countries several produced wheat in is.....	true	false	1
2	pays cautious it be to often	true	false	2
3	north all railroads south and run	true	false	3
4	men industrious pay good should get.....	true	false	4
5	temperatures freezes water high at.....	true	false	5
6	birds on their nests ground the some make.....	true	false	6
7	to is it easy a mud deep through drive car	true	false	7
8	sleepy work is is hard it to when one.....	true	false	8
9	friends in us disaster often false desert	true	false	9
10	is it all away throw wisest money to one's	true	false	10
11	wind when the the all blows fall trees	true	false	11
12	feeling is of painful exaltation the	true	false	12
13	seldom birds' diamonds nests are in found	true	false	13
14	inflict men pain needless cruel sometimes	true	false	14
15	always sleeplessness clear causes a conscience	true	false	15
16	rich rich have born all men been	true	false	16
17	and emotions sorrow similar grief are	true	false	17
18	knows than pupil a teachers always his more.....	true	false	18

Right.....*Wrong*.....*Score*.....

TEST 9. CLASSIFICATION

SAMPLES
1 bullet cannon gun sword ~~pencil~~
2 Canada ~~Chicago~~ China India France

In each line cross out the word that does not belong there.
Cross out JUST ONE WORD in each line.

1	elm brier maple oak poplar	1
2	needle pan stitch thimble thread	2
3	Governor King Mayor President Priest	3
4	baby calf colt doll kitten	4
5	Democrat Methodist Republican Tory Whig	5
6	Cæsar Grant Napoleon Shakespeare Washington	6
7	Anna Emma John Lucy Sarah	7
8	heart ears eyes nose tongue	8
9	close distant far loud near	9
10	author essay novel poem story	10
11	cat cow dog pig wolf	11
12	blackboard chalk crayon pen pencil	12
13	clay pebble rock stone wood	13
14	automobile barometer clock speedometer thermometer	14
15	algebra arithmetic geometry history trigonometry	15
16	alfalfa clover corn grass timothy	16
17	carefulness forethought industry poverty thrift	17
18	beg borrow earn inherit lend	18

Right.....

TEST 10. NUMBER SERIES

SAMPLES	5	10	15	20	25	30	35
	20	18	16	14	12	10	8

In each row try to find out how the numbers are made up, then on the two dotted lines write the TWO numbers that should come next.

1st Row				3	4	5	6	7	8	....
2d Row			3	6	9	12	15	18	....	
3d Row		10.8	9.7	8.6	7.5	6.4	5.3	....		
4th Row			5	6	8	9	11	12	....	
5th Row		27	27	23	23	19	19	....		
6th Row			0	$\frac{2}{3}$	$1\frac{1}{3}$	2	$2\frac{2}{3}$	$3\frac{1}{3}$	....	
7th Row			576	288	144	72	36	....		
8th Row					2	10	50	....		
9th Row		30	33	34	37	38	41	....		
10th Row	23	22	21	19	18	17	15	14	....	
11th Row			$\frac{3}{32}$	$\frac{3}{16}$	$\frac{3}{8}$	$\frac{3}{4}$	$1\frac{1}{2}$	3	....	
12th Row			81	27	9	3	1	$\frac{1}{3}$	....	

Right ..... × 2 = *Score* .....

The following is a sample of the arrangement of the I. Q. ranking. If a student had taken more than one test, the highest I.Q. was used. All the I.Q.'s were arranged according to rank. Here again for each student we have the date of the test, the chronological and mental ages, the score of the test, and the I.Q. given.

BOYS OF CLASS OF 1924

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
T. M. 1921-1922	14 - 8	192	18 - 8	127
A. D. 1921-1922	15 - 7	187	18 - 6	118
B. O. 1923-1924	17 - 1	180	18 - 1	112
C. M. 1923-1924	18 - 7	163	17 - 3	108
C. L. 1922-1923	18 - 8	163	17 - 3	108
B. L. 1923-1924	16 - 9	154	16 - 11	106
B. E. 1923-1924	19	150	16 - 8	104
G. C. 1923-1924	18 - 6	148	16 - 7	104
S. G. 1923-1924	21 - 7	143	16 - 4	102

BOYS OF CLASS OF 1924 (CONT.)

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
P. R. 1923-1924	16 - 3	146	16 - 5	102
R. J. 1923-1924	18 - 7	145	16 - 5	102
S. F. 1923-1924	17 - 7	142	16 - 4	102
B. L. 1923-1924	17 - 6	127	15 - 7	97
M. T. 1922-1923	18	129	15 - 9	98
M. F. 1922-1923	19 - 6	131	15 - 9	98
M. C. 1923-1924	19 - 10	130	15 - 9	98
C. C. 1923-1924	17 - 5	125	15 - 6	97
F. J. 1923-1924	18 - 2	125	15 - 6	97
C. R. 1923-1924	19 - 9	116	15 - 1	94
H. P. 1923-1924	17 - 4	118	15 - 2	95
H. J. 1922-1923	20 - 7	92	14	88

GIRLS OF CLASS OF 1924.

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
H. H. 1921-1922	12 - 9	159	17 - 2	135
S. L. 1921-1922	15	178	18	119
B. A. 1923-1924	17 - 11	180	18 - 2	112
D. V. 1921-1922	15 - 3	156	16 - 11	111
F. M. 1922-1923	16 - 10	162	17 - 3	108
E. H. 1923-1924	17 - 6	163	17 - 4	108
N. L. 1921-1922	16 - 5	165	17 - 5	108
H. M. 1923-1924	17 - 10	159	17 - 2	107
R. A. 1921-1922	14 - 1	113	14 - 11	107
M. L. 1922-1923	17 - 4	160	17 - 2	107
W. L. 1922-1923	16 - 7	159	17 - 2	107
R. D. 1923-1924	17 - 7	154	16 - 11	106
W. G. 1923-1924	17 - 4	157	17 - 1	106
M. T. 1923-1924	18 - 5	152	16 - 9	104

GIRLS OF CLASS OF 1924 (CONT.)

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
F. V. 1923-1924	16 - 8	150	16 - 8	104
B. K. 1923-1924	20 - 6	149	16 - 8	104
C. N. 1923-1924	17 - 6	149	16 - 8	104
C. P. 1923-1924	18 - 0	149	16 - 8	104
M. M. 1923-1924	18 - 9	143	16 - 4	102
B. Z. 1923-1924	17 - 7	146	16 - 5	102
C. D. 1922-1923	16 - 5	141	16 - 3	102
C. V. 1923-1924	16 - 8	139	16 - 3	102
F. V. 1923-1924	16 - 8	143	16 - 4	102
H. W. 1923-1924	18 - 5	145	16 - 5	102
W. R. 1922-1923	17 - 5	145	16 - 5	102
S. G. 1923-1924	16 - 9	146	16 - 5	102
W. N. 1922-1923	16 - 7	142	16 - 4	102
K. L. 1923-1924	18 - 2	136	16 - 0	100

GIRLS OF CLASS OF 1924 (CONT.)

NAME	AGE Yrs. mo.	SCORE	MENTAL AGE Yrs. mo.	I.Q.
O. M. 1921-1922	15 - 4	123	15 - 4	100
L. H. 1923-1924	18 - 5	132	15 - 10	99
H. L. 1923-1924	18 - 11	128	15 - 8	98
C. F. 1921-1922	15 - 5	113	15	97
S. V. 1922-1923	16 - 4	115	15 - 1	94
R. I. 1923-1924	16 - 10	115	15 - 1	94
F. G. 1923-1924	16 - 5	115	15 - 1	94
D. H. 1922-1923	17 - 9	110	14 - 10	93
M. V. 1921-1922	16 - 5	58	12 - 5	78